Register now!!

This product is eligible for the P2HD 5 Year Warranty Repair Program.
For details, see page 11.
http://panasonic.biz/sav/pass_e/

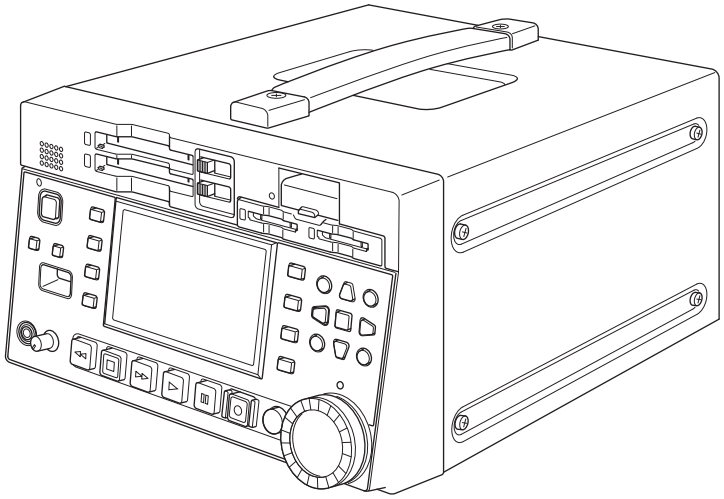
Panasonic

Operating Instructions

Memory Card Recorder

Model No. AJ-PD500P

Model No. AJ-PD500E



Before operating this product, please read the instructions carefully and save this manual for future use.
• AVCHD capability is available when the optional AVCHD Codec board AJ-YCX500G is installed.

M1013KT0 -PS

ENGLISH

VQT5C69A(E)

Read this first! (For AJ-PD500P)

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

This equipment must be grounded.
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power outlet which is effectively grounded through the normal household wiring.
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the ground. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power outlet is grounded or that the installation is completely safe. For your safety, if you are in any doubt about the effective grounding of the power outlet, please consult a qualified electrician.

WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

WARNING:

Always keep memory cards (optional accessory) out of the reach of babies and small children.

CAUTION:

The mains plug of the power supply cord shall remain readily operable.
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.
To completely disconnect this equipment from the AC mains, disconnect the mains plug from the AC receptacle.

CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

CAUTION:

To reduce the risk of fire or electric shock, refer mounting of the optional interface boards to qualified service personnel.

CAUTION:

This apparatus can be operated at a voltage in the range of 100 – 240 V AC.
Voltages other than 120 V are not intended for U.S.A. and Canada.
Operation at a voltage other than 120 V AC may require the use of a different AC plug. Please contact either a local or foreign Panasonic authorized service center for assistance in selecting an alternate AC plug.

CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

CAUTION:

A coin type battery is installed inside of the unit.
Do not expose the unit to excessive heat such as sunshine, fire or the like.

▭ indicates safety information.

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

FCC NOTICE (U.S.A.)

Declaration of Conformity

Model Number:	AJ-PD500P
Trade Name:	Panasonic
Responsible Party:	Panasonic Corporation of North America
	Two Riverfront Plaza, Newark, NJ 07102
Support contact:	1-800-524-1448

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

CAUTION:

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet “Something About Interference” available from FCC local regional offices helpful.

FCC Warning:

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user’s authority to operate this device.

Read this first! (For AJ-PD500E)

WARNING:

This equipment must be earthed.
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is earthed or that the installation is completely safe. For your safety, if you are in any doubt about the effective earthing of the power point, please consult a qualified electrician.

WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

WARNING:

Always keep memory cards (optional accessory) out of the reach of babies and small children.

CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

CAUTION:

To reduce the risk of fire or electric shock, refer mounting of the optional interface boards to qualified service personnel.

CAUTION:

Do not remove panel covers by unscrewing them. To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

CAUTION:

The mains plug of the power supply cord shall remain readily operable.
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.
To completely disconnect this equipment from the AC mains, disconnect the mains plug from the AC receptacle.

CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

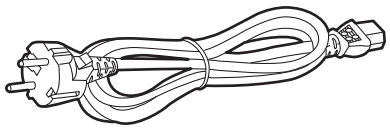
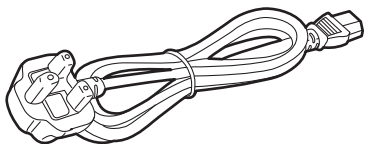
CAUTION:

A coin type battery is installed inside of the unit. Do not expose the unit to excessive heat such as sunshine, fire or the like.

indicates safety information.

Caution for AC Mains Lead

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.
This product is equipped with 2 types of AC mains cable. One is for continental Europe, etc. and the other one is only for U.K. Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

FOR CONTINENTAL EUROPE, ETC. Not to be used in the U.K.	**FOR U.K. ONLY**
	

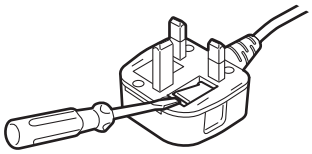
FOR U.K. ONLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 13 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

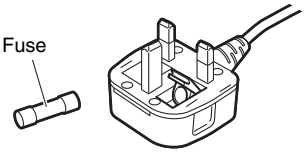
If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

How to replace the fuse

1.Open the fuse compartment with a screwdriver.



2.Replace the fuse.



▭ indicates safety information.

Note regarding the Power Management function specified under COMMISSION REGULATION (EC) No 1275/2008 implementing Directive 2009/125/EC of the European Parliament and of the Council.

This device is designed and manufactured for use at a broadcasting station and/or in a similar environment.
This device is not equipped with a Power Management function or the Power Management function is set to OFF as it will prevent the device from fulfilling its intended purpose for the reasons below.

1. If the device is a Studio Camera, a Weather Camera, a Mixer or other processor:
   A Power Management function may cause the device to suddenly stop during recording or while On Air.
2. If the device is a Studio Monitor:
   A Power Management function may cause video for the confirmation of whether a signal is normal, or whether the signal has been lost, to be un-viewable.
3. If the device is a Camera Recorder:
   A professional camera recorder must be able to start quickly at any time, but a Power Management function will cause an increase in the time taken to resume from Stand-by mode.

EEE Yönetmeliğine Uygundur.
EEE Complies with Directive of Turkey.

Manufactured by: Panasonic Corporation, Osaka, Japan
Importer's name and address of pursuant to EU rules:
Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, Germany

EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

1. Applicable standards and operating environment (AJ-PD500E)

The apparatus is compliant with:

- standards EN55103-1 and EN55103-2, and
- electromagnetic environments E1, E2, E3 and E4

2. Pre-requisite conditions to achieving compliance with the above standards

<1> Peripheral equipment to be connected to the apparatus and special connecting cables

- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

<2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.

- Video signal connecting cables
  Use double shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).
  Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables
  If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU.
  Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables (IEEE1394, USB)
  Use shielded cables, which provide quality performance for high-frequency applications, as connecting cables.
- When connecting to the DVI signal terminal, use a cable with a ferrite core.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

3. Performance level

The performance level of the apparatus is equivalent to or better than the performance level required by these standards.

However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

To remove the battery

Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

- The SDXC logo is a trademark of SD-3C, LLC.
- HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries.
- Microsoft® and Windows® are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- QuickTime and the QuickTime logo are trademarks or registered trademarks of Apple Inc., used under license therefrom.
- Apple, Mac, Mac OS, MacBook, iPhone, iPod touch, iPad, QuickTime, and Safari are registered trademarks of Apple Inc. in the United States and/or other countries.
- Microsoft product screenshots are used in accordance with the guidelines of Microsoft Corporation.
- Other company names and product names appearing in this manual are trademarks or registered trademarks of their respective owners.

Illustrations in this manual

- Illustrations of the recorder unit and menu screens may appear different from the actual recorder unit and menu screens.

Page references

- In this manual, page references are indicated as: (→ "∗∗∗" page ∗∗).

Terminology

- An SD memory card, SDHC memory card, and SDXC memory card are all referred to as an "SD memory card."
- A memory card with the "P2" logo (for example, the separately sold AJ-P2E064FGN) is referred to as a "P2 memory card."
- A memory card with the "microP2" logo (for example, the separately sold AJ P2M032AGN) is referred to as a "microP2 memory card."
- A P2 memory card and microP2 memory card are referred to as a "P2 card."
  Furthermore, a P2 memory card slot and microP2 memory card slot are referred to as a "P2 card slot."
- Recording with the system frequency at 23.98 Hz or 24 Hz is referred to as "native recording."
- In this manual, the following operating system is referred to as "Windows 7."
  - Microsoft® Windows® 7 operating system
- In this manual, the following operating system is referred to as "Windows 8."
  - Microsoft® Windows® 8 operating system
- A recordable media device such as an external hard disk drive connected to a USB port is referred to as a "storage device."
- Video created by a single recording operation is referred to as a "clip."
- Orange button labels on the unit panel indicate alternate functions enabled by holding down the SHIFT button. The operating instructions refer to the buttons only by label, without mentioning the SHIFT button.

Proxy recording with this product

This product is licensed under the AVC Patent Portfolio license for personal and non-commercial use, and is not licensed for any activity except those for personal use described below.

- Recording video compliant with the AVC standard (hereinafter referred to as an AVC video).
- Playing AVC video recorded by a consumer engaged in a personal and non-commercial activity.
- Playing AVC video that was obtained from a licensed provider.
  For details, refer to the MPEG LA, LLC website (http://www.mpegla.com).

Website URL

http://pro-av.panasonic.net/

About copyrights

- Copyright laws may prohibit use, except for personal pleasure, of your recorded video and audio content without permission of the rights holder.

Contents

Read this first! (For AJ-PD500P) 2

Read this first! (For AJ-PD500E) 5

Usage Precautions 10
- Regarding this unit 10
- Before Use 12
  - Always confirm the year, month, day, time, and time zone, and set as necessary 12
  - Compatible storage media 12
  - Driver installation 12

Accessories and Options 13
- Accessories 13
- Options 13

Control Reference Guide 14
- Controls 14
- Slots and Other Parts 16
- I/O Connectors 17

Preparation 20
- How to Turn On/Off the Power 20
  - Turning On the Power 20
  - Turning Off the Power 20
  - Auto Power Off during Operation 20
- Setting the Year, Month, Day, and Time 21
- P2 Cards 22
  - P2 Card Access Lamp and P2 Card Status 22
  - P2 Card Recording Times 22
- Handling of Recording Data 24
- Using SD/SDHC/SDXC Memory Cards 25

Available Modes 26

Main Mode 27
- Recording/Playback Screen 27
  - Recording Clips 27
  - Playing Back Clips 30
- Thumbnail Screen 32
  - Displaying the Thumbnail Screen. 32
  - Names and Functions of the Parts of the Thumbnail Screen 33
  - Changing the Thumbnail Display 35
  - Playing Back Clips 36
  - Selecting and Deselecting Clips 38
  - Adding Text Memos and Shot Marks 38
  - Copying Clips 39
  - Deleting Clips 40
  - Repairing and Reconnecting Clips 40
  - Viewing and Editing the Clip Information 41
  - Changing Thumbnails 42
  - Adding Metadata to Clips During Recording 43
  - Formatting P2 Cards and SD Memory Cards 45
  - Checking the Card Status 45
  - Manual and Automatic CPS Authentication 46
  - Connecting an External Device via the USB HOST Port 47
- Using the Unit Connected to a Network 56
  - Network Settings 56
  - Using FTP Client Functions 58
  - Viewing the Thumbnails of Clips on an FTP Server (FTP Thumbnail Screen) 59
  - Deleting Clips on the FTP Server 60
  - Viewing FTP Server Clip Information 60
  - Transferring Clips 60
  - Transferring SD Memory Card Data 62

USB Device Mode 64

AVCHD Playback Mode 65
- Using an Optional AVCHD Board 65
  - SD/SDHC/SDXC Memory Cards 65
  - Operating the AVCHD Thumbnail Screen 66
  - Setting Playback 69
  - Playing Back AVCHD Clips 70
- Handling of SD Memory Card Recording Data ... 73

Screen Display 74
- OSD Display 74
- Deck Information (DIAG) Display 75
- Waveform Monitor (WFM) Display 76

Time Code, User Bits, and CTL 77
- Time code 77
- User Bits 77
- CTL 77
- Setting the Time Code and User Bits 77

Setup Menu 79
- Menu Operations 79
- Menu Structure 80
- Menu List 82
  - CLIP 82
  - REC/PB 86
  - I/F SETUP 91
  - FILE 102
  - SYSTEM 105
  - List of Compatible Input and Output Formats 107

Using a Keyboard 108
- Full Keyboard 108
- Numeric Keyboard 108
- USB Keyboard 108

For Long and Trouble-Free Operation 109
- Maintenance 109
- Condensation 109
- Storage Precautions 109
- Warning System 110
  - Warning Details 110
  - Error Codes 111
  - Updating the Firmware in This Unit 118

Specifications 119

Index 122

Usage Precautions

Regarding this unit

■ Panasonic makes no guarantees regarding recordings

- Please note that Panasonic makes no guarantees regarding recordings in cases where images and/or audio were not recorded as you intended due to problems with this unit or P2 cards.

■ Be careful to avoid getting water inside the unit when using it in rainy or snowy weather, or near the sea shore.

- The unit or a card may be damaged. (In some cases, it may become unrepairable.)

■ Do not install this unit in a location exposed to direct sunlight

- The cabinet may be deformed and the LCD screen may be damaged.

■ Keep the unit away from electromagnetic devices (such as TVs and video game consoles).

- Using the unit on or near a TV may result in distorted images or audio due to electromagnetic radiation.
- The strong magnetic field produced by loudspeakers and large monitors may damage recordings or distort images.
- Electromagnetic waves from microcomputers may adversely affect the unit or distort images and audio.
- If an electromagnetic device adversely affects the unit and results in it becoming unable to be operated correctly, turn the unit off and disconnect the AC cable from the outlet. Then, reconnect the AC cable. Finally, turn the unit back on.

■ Do not use the unit near a radio transmitter or high-voltage equipment.

- Use near a radio transmitter or high-voltage equipment may adversely affect recorded images and audio.

■ When using the unit at the sea shore, in the open air, etc., be careful not to get sand or dust inside.

- The sand or dust may damage the unit or a card. (Be especially careful when inserting and removing cards.)

■ When carrying the unit, be careful not to drop it.

- A strong impact may damage the unit and result in it becoming unable to be operated correctly.

■ Do not get insecticides or other volatile materials on the unit.

- The unit may be deformed and the paint may peel off if insecticides or other volatile materials get on the unit.
- Do not leave the unit in contact with rubber or vinyl products for long periods.

■ Notes on the disposal or transfer of memory cards and storage devices

The format and delete functions on this unit or a PC will only change the file management data and will leave the data on the memory card or storage device intact. It is recommended that cards or storage devices either be physically destroyed or that commercially available software be used to completely delete any data they contain. Management of data on memory cards and storage devices is the sole responsibility of the user.

■ LCD

- The pixels of the LCD monitor are controlled to obtain high precision with 99.99 % of the effective pixels. This leaves less than 0.01 % of pixels that may not light or may remain on all the time. This is normal and will have no effect on the images you shoot.
- There may be some unevenness on the screen depending on the image displayed.
- Wiping or rubbing the LCD screen with a rough cloth may damage it.
- A temporary afterimage (burn-in) may occur when the same image or text is displayed for a long time, although it can be recovered by turning the power off for several hours.
- LCD response and brightness vary with operating temperature.
- In a high-temperature and high-humidity location, the LCD panel characteristics may change and result in uneven image quality.

■ Notes on using the network function

Please note that Panasonic makes no guarantees regarding damage resulting from incorrectly configuring the network settings to use the network function. Furthermore, please also note that Panasonic is not liable to pay compensation for any damages arising from the use of this function.

■ Notes on security

If you use the network function of this product, there is the likelihood of being subjected to the following damage.

- Leakage of personal information via this product
- Unauthorized operation of this product by a third party with malicious intent
- Interference or stoppage of this product by a third party with malicious intent

Be sure to implement sufficient security measures for PCs and mobile devices.

- Set a password to limit the users who can log in.
- Use a password that is as difficult to guess as possible.
- Change the password regularly.
- Panasonic and its affiliate companies would never directly inquire about a password. In the event that somebody does make a direct inquiry, do not let the person know the password.
- Prior to the repair, maintenance, disposal, or transfer of this product, initialize the network settings to prevent the leakage of information.

■ Information on software for this product

1. This product includes software licensed under the GNU General Public License (GPL) and GNU Lesser General Public License (LGPL), and users are hereby informed that they have the right to obtain, modify, and redistribute the source code of this software.
2. This product includes software licensed under the MIT-License.
3. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).
4. This product includes software licensed under the OpenBSD License.
5. This product includes PHP, freely available from <http://www.php.net/>.
6. This software is based in part on the work of the Independent JPEG Group.

This information is provided on the installation CD-ROM supplied with the unit. Please refer to the LDOC folder. (The documents are in English.)

For details on obtaining the source code, see the Panasonic website (→ "Website URL" on page 8).

Users are requested to refrain from making any inquiries about the source code they have obtained.

P2HD 5 Year Warranty Repair Program*1

Thank you for purchasing this Panasonic P2HD device.
Register as a user for this device to receive a special service warranty up to five years of free warranty repairs.

Customers who register as users on the website will receive an extended warranty repair valid for up to five years.

	1st year	2nd year	3rd year	4th year	5th year*5
P2HD device*2	Basic warranty*3	Extended warranty repair*4			

*1: Please note that this extended warranty is not available in some countries/regions. *2: Not all models eligible for extended warranty coverage.
*3: The basic warranty period may vary depending on the country/region. *4: Not all repair work is covered by this extended warranty.
*5: The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Purchase P2 product → Register online within 1 month → "Registration Notice" e-mail sent → Free 5 years of Warranty Repairs

Make sure to save the "Registration Notice" e-mail during the warranty period.

Details about user registration and the extended warranty: http://panasonic.biz/sav/pass_e

Please note, this is a site that is not maintained by Panasonic Canada Inc. The Panasonic Canada Inc. privacy policy does not apply and is not applicable in relation to any information submitted. This link is provided to you for convenience.

Before Use

Always confirm the year, month, day, time, and time zone, and set as necessary

The clock setting affects the management of recorded content and playback order. Before recording, set and confirm the year, month, day, time, and time zone settings.
(→ "Setting the Year, Month, Day, and Time" page 21)

Compatible storage media

The following types of storage media can be used. See the specified pages for details.

■ Recording and playback

- P2 memory cards and microP2 memory cards (→ "P2 Cards" page 22)

■ Proxy recording, data storage, and AVCHD playback

- SD, SDHC, and SDXC memory cards (→ "Using SD/SDHC/SDXC Memory Cards" page 25)

Driver installation

Before use, download the necessary drivers from the Panasonic website and install them on the personal computer.
For the installation procedure, refer to installation manual on the Panasonic website.

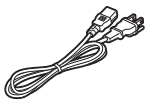
For the latest information on drivers, refer to the Panasonic website. Refer to (→ "Website URL" page 8)

Accessories and Options

Accessories

AC power cord

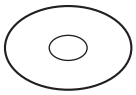
- AJ-PD500P



- AJ-PD500E
  (For the U.K.)

(For areas other than the U.K.)

CD-ROM



- Operating instructions

- After unpacking, dispose of the AC power cord caps and packing materials properly.

Options

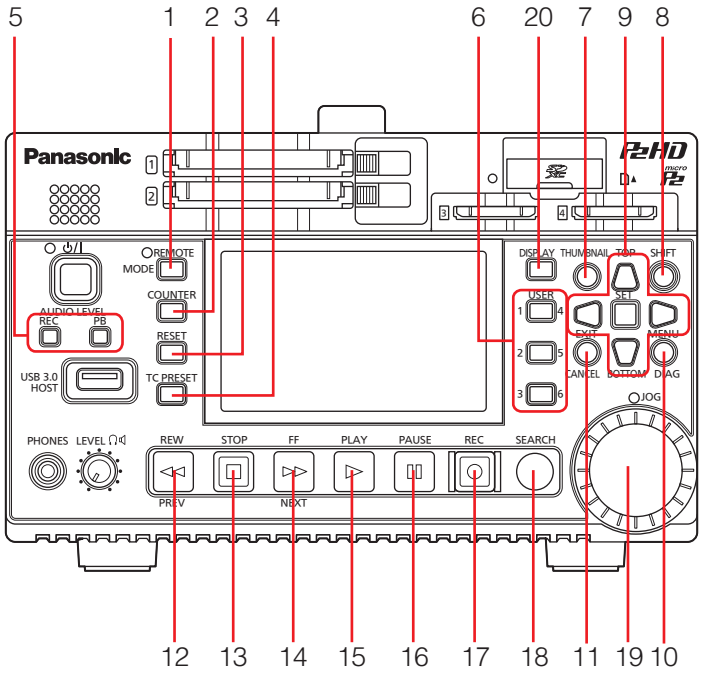
- AVCHD codec board (AJ-YCX500G)

◆**Note:**

- Do not use the options with other than the above product.
- For details on installing options, contact your dealer.

Control Reference Guide

Controls



About button labels: Orange labels indicate alternate functions enabled by simultaneously pressing the [SHIFT] button.
<Example> Press the [SHIFT] and [REMOTE/MODE] buttons simultaneously to execute the [MODE] button function.

1. REMOTE, MODE button

   [REMOTE] button:
   This button switches to the mode for controlling the unit from the REMOTE connector.
   When the unit can be controlled from the REMOTE connector, the lamp on the left is lit.
   [MODE] button:
   This button switches to USB device mode (USB DEVICE) or AVCHD playback mode.
   (→ “USB Device Mode” page 64, “AVCHD Playback Mode” page 65)

2. COUNTER button

   This button switches the counter display in the following order.
   TC→UB→CTL→TC
   (→ “Time Code, User Bits, and CTL” page 77)

3. RESET button

   When the counter display on the display panel is CTL, press this button to reset the counter display to “0:00:00:00”.
   (→ “Time Code, User Bits, and CTL” page 77)

4. TC PRESET button

   This button sets the TC or UB value.
   (→ “Time Code, User Bits, and CTL” page 77)

5. AUDIO LEVEL buttons

   [AUDIO LEVEL-REC] button:
   This button displays the recording audio level adjustment screen.
   (→ “Recording Clips” page 27)
   [AUDIO LEVEL-PB] button:
   This button displays the playback audio level adjustment screen.
   (→ “Playing Back Clips” page 30)

6. USER 1-3, 4-6 buttons

   Users can assign any functions to these buttons.
   (→ “USER BUTTON” page 99)

7. THUMBNAIL button

   This button displays or hides the thumbnail screen.
   (→ “Displaying the Thumbnail Screen.” page 32)

8. SHIFT button

   Hold this button while pressing another button to perform the assigned function of that button.

9. Cursor control buttons

Up/down/left/right cursor buttons:

- These buttons control the cursor movement for thumbnails, menus, etc.
- Press the up or down cursor button during the display of playback still images to step one frame forward or back. (→ "Frame-by-frame playback" page 31)
- Use the left or right cursor button to switch the audio channel for recording and playback audio level adjustment. (→ "Recording Clips" page 27)

[TOP]/[BOTTOM] buttons:

These buttons move the cursor to the first (TOP) or last (BOTTOM) thumbnail.

[SET] button:

This button allows you to perform operations such as selecting thumbnails and menu items.

10. MENU, DIAG button

[MENU] button:

This button displays the menu.

[DIAG] button:

When the menu is not displayed, press this button to display the DIAG screen for viewing various conditions. (→ "Deck Information (DIAG) Display" page 75)

11. EXIT, CANCEL button

[EXIT] button:

This button closes the menu or returns from the storage explorer to normal display.

[CANCEL] button:

This button cancels a selection, stops copying, etc.

12. REW, PREV ◁◁ button

[REW] button:

This button fast rewinds playback.

The speed can be selected in the "FF.REW MAX" (→ page 87) menu item.

[PREV] button:

This button cues the current or previous clip or the clip and text memo location during playback.

13. STOP □ button

This button stops playback or recording.

14. FF, NEXT ▷▷ button

[FF] button:

This button fast forwards playback.

The speed can be selected in the "FF.REW MAX" (→ page 87) menu item.

[NEXT] button:

This button cues the next clip or the clip and text memo location during playback.

15. PLAY ▷ button

This button starts playback.

(→ "Playing Back Clips" page 30)

16. PAUSE ▯▯ button

Press this button during playback to pause (STILL) playback to display a still image.

Press the button while playback is paused to resume playback.

Press the button during recording to switch to the recording standby (PAUSE) state.

Press the button in the recording standby state to resume recording.

17. REC ○ button

This button allows you to check video and audio in EE mode during playback image output. With the exception of when playback is stopped, pressing this button activates EE mode, which remains active until you press another button.

EE mode monitoring is only available when the playback video format matches the setting in the "LINE&FREQ" (→ page 105) menu item.

Press this button and the [PLAY] ▷ button simultaneously to start recording.

Press this button and the [PAUSE] ▯▯ button simultaneously to switch to the recording standby state. Remote recording from a camera can be enabled from the menu. Set remote recording in the "AUTO REC" (→ page 86) menu item.

18. SEARCH button

This button switches to search mode.

19. Multi control dial

When in search mode:

Dial for checking video and searching. Each press toggles between SHTL (shuttle) mode and JOG (jog) mode.

- Operation is in SHTL mode immediately after switching to search mode.

When adjusting the recording or playback audio level:

The recording or playback audio level can be adjusted by pressing the [AUDIO LEVEL-REC] or [AUDIO LEVEL-PB] button and then turning the multi control dial. (→ "Recording Clips" page 27, "Playing Back Clips" page 30)

When the thumbnail screen is displayed:

Turning the dial performs the same operation as the left and right cursor buttons.

Pressing the dial performs the same operation as the [SET] button.

When the menu is displayed:

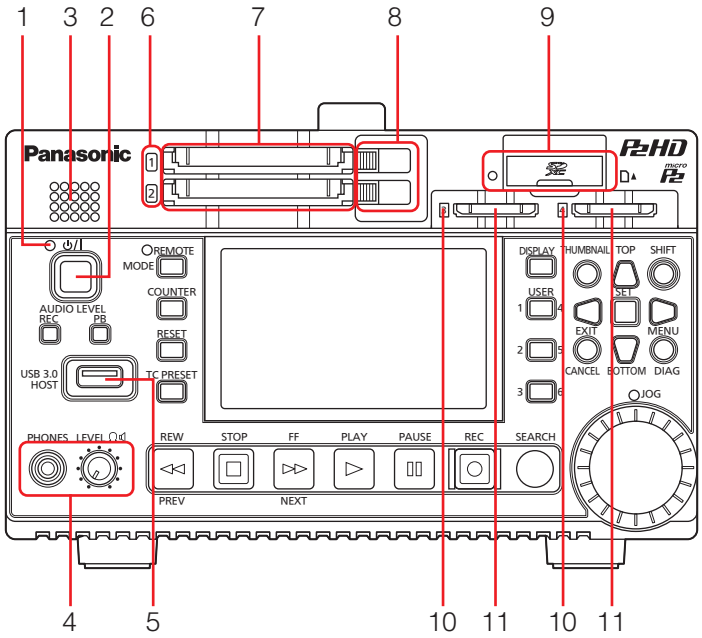
Turning the dial performs the same operation as the up and down cursor buttons.

Pressing the dial performs the same operation as the [SET] button.

20. DISPLAY button

This button switches the display of the OSD to "no display" → "OSD display" → "no display." (→ "Screen Display" page 74)

Slots and Other Parts



1. ⏻/❙ lamp
   (→ “How to Turn On/Off the Power” page 20)

2. ⏻/❙ button
   This button turns the power on or off.
   (→ “How to Turn On/Off the Power” page 20)

3. Speaker
   This speaker outputs the monitor audio.
   Output from the speaker is disabled when headphones are connected.

4. PHONES/LEVEL🎧🔊
   Headphone jack:
   This jack is for connecting stereo headphones to listen to the sound being recorded or played back with the headphones.
   Monitor audio volume adjustment knob:
   This knob adjusts the monitor audio volume of the headphones or speaker.
   Set whether or not to link the MON L/R output jacks in the “MONITOR OUT VOL.” (→ page 95) menu item.

5. USB HOST port (USB 3.0 Type A)
   (→ “Connecting an External Device via the USB HOST Port” page 47)

◆**Note:**

- Use a double-shielded cable to connect to this port.
- Use a USB 3.0 compliant cable to connect USB 3.0 compatible storage devices.

6. P2 memory card access lamps
   (→ “P2 Card Access Lamp and P2 Card Status” page 22)

7. P2 memory card slots
   (→ “P2 Cards” page 22)

8. EJECT buttons
   (→ “P2 Cards” page 22)

9. SD/SDHC/SDXC memory card slot and access lamp
   Insert an SD/SDHC/SDXC memory card.
   Insert the card cut-corner-edge first and label-side up, until the card latches into place.
   To remove it, check that the access lamp is not lit green or flashing orange, then release the latch by gently pushing the card in again.

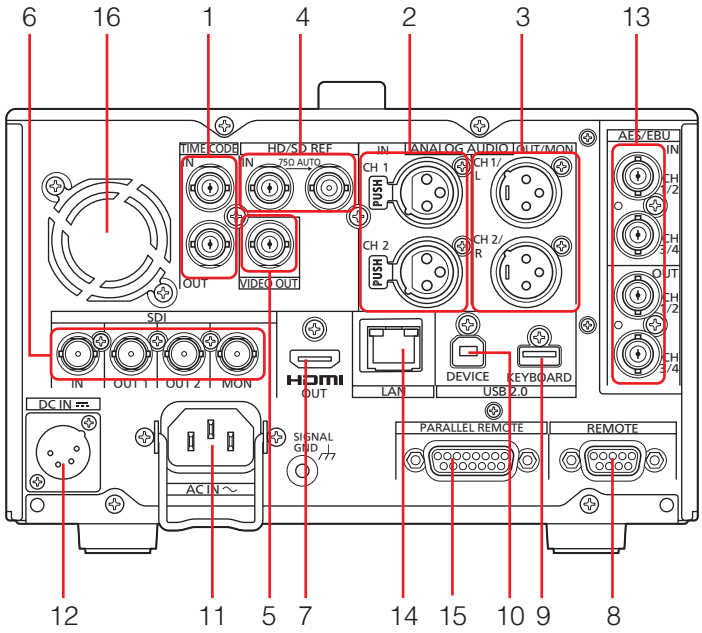
◆**Note:**

Use an SD/SDHC/SDXC memory card for reading the CPS password, reading and writing menu settings, reading and writing metadata, proxy recording, and AVCHD playback.
(→ “Using SD/SDHC/SDXC Memory Cards” page 25)

10. microP2 memory card access lamps
    (→ “P2 Card Access Lamp and P2 Card Status” page 22)

11. microP2 memory card slots
    (→ “P2 Cards” page 22)

I/O Connectors



1. TIME CODE IN/OUT Jacks

TIME CODE IN:	This jack is for recording an external time code onto a P2 card.
TIME CODE OUT:	This jack is for outputting the playback time code during playback. It outputs the time code from the internal time code generator during recording.

2. ANALOG AUDIO IN jacks

These jacks are for inputting analog audio.

3. ANALOG AUDIO OUT/MON output jacks

These jacks are for outputting the audio signals (CH1 to CH8) selected in the “MONITOR CH” (→ page 95) menu setting.

4. REF IN jacks

These jacks are for inputting HD and SD reference video signals.

◆Note:

- For an HD reference, input a positive and negative polarity tri-level sync signal. Input a signal that match the input signal and SYSTEM format.
- For an SD reference, input a black burst signal that complies with SMPTE ST 170 and ITU624-4.
- Video and audio output signals may be degraded when no reference video signal is provided. We recommend using this unit in systems that provide a reference video signal for input.
- When recording 1080P or 720P without an HD or SD reference input, the data may be recorded with the phase offset in relation to the input signal.

5. VIDEO OUT jack

This jack is for outputting analog composite video signals.

6. HD/SD-SDI IN/OUT/MON jacks

These jacks are for inputting and outputting serial digital component audio/video signals.
The output jack for superimposition can be changed in the “OSD OUTPUT” (→ page 96) menu setting.

◆Note:

Use 5C-FB or equivalent double-shielded cables to connect to these jacks.

7. HDMI OUT port

Connect a monitor or TV using an HDMI cable.

◆**Note:**

- This unit does not support VIERA link. Be careful because connecting it to a VIERA link compatible device with an HDMI cable may cause VIERA link to malfunction on that device.
- Use a double-shielded cable to connect to this port.

8. REMOTE connector

Connect an external controller to control the unit from the external device.

◆**Note:**

Use a double-shielded cable to connect to this connector.

9. KEYBOARD port (USB 2.0 Type A)

Connect an external USB keyboard to enter metadata and other data.

(→ "Using a Keyboard" page 108)

10. USB 2.0 device port

(→ "USB Device Mode" page 64)

◆**Note:**

Use a double-shielded cable to connect to this port.

11. AC IN connector

Use the supplied AC cable to connect to a power outlet.

◆**Note:**

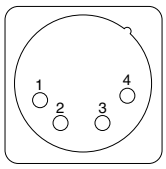
When both an AC power supply and external DC power supply are connected, priority is given to supplying power from the AC power supply.

12. DC IN connector

Connect a 12 V DC power supply.

When the voltage drops to approximately 10.6 V, the unit is shutdown automatically. (When the "EXT DC IN SELECT" (→ page 98) menu item is set to "DC PWR SUPPLY")

Afterwards, the power is not restored automatically even if the power supply voltage recovers. Press the [⏻/I] button to turn the power on.



DC IN connector

Pin No.	Signal
1	GND
2, 3	-
4	+12 V

◆**Note:**

For the DC cable, use a shielded cable that is shorter than 2 m (78-3/4 inches). Using a DC cable of 2 m (78-3/4 inches) or longer may result in noise appearing on the screen.

When using an external DC power supply, be sure to check the external DC power supply ratings and use one that is suitable for the unit.

Check the pin assignment of the DC output connector of the external DC power supply and the DC IN connector on the unit, and connect the connectors with the correct polarity. Incorrect connection of the +12 V power supply to the GND connector may cause a fire or injury.

13. AES / EBU IN / OUT connectors

These connectors are for inputting and outputting digital audio signals that comply with the AES/EBU standard.

◆**Note:**

- The digital audio signals that are input need to be synchronized with the video input signals. If they are not synchronized, the audio output signals will be affected by noise.
- Use double-shielded cables to connect to these connectors.

14. LAN port

This port enables a 1000BASE-T/100BASE-TX/10BASE-T network connection.

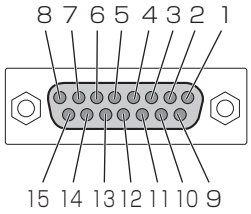
(→ "Using the Unit Connected to a Network" page 56)

◆**Note:**

- Use a shielded cable to connect to this port.
- The orange lamp lights when a LAN link is established. The green lamp flashes while data is being transferred.

15.PARALLEL REMOTE connector

This is a 15-pin parallel remote connector.
The assignment for each port can be selected in the “PARALLEL PORT PORT1-7 PORT 9-14” (→ page 100 and page 101) menu item.



Pin No.	Port Name	Function
1	PORT1	Command input port 1
2	PORT2	Command input port 2
3	PORT3	Command input port 3
4	PORT4	Command input port 4
5	PORT5	Command input port 5
6	PORT6	Command input port 6
7	PORT7	Command input port 7
8	+5 V Output (+180 mA max.)	
9	PORT9	Status output port 1
10	PORT10	Status output port 2
11	PORT11	Status output port 3
12	PORT12	Status output port 4
13	PORT13	Status output port 5
14	PORT14	Status output port 6
15	GND	GND

◆Note:

- Supply TTL-level, active LOW electrical signals with an edge of 100 msec or higher as input signals.
- A maximum open collector and sink current of 6 mA is output as an output signal.
- Use a shielded cable to connect to this connector.

16.Fan

This fan is for cooling the unit. Install the unit where the ventilation holes will not be blocked.

◆Note:

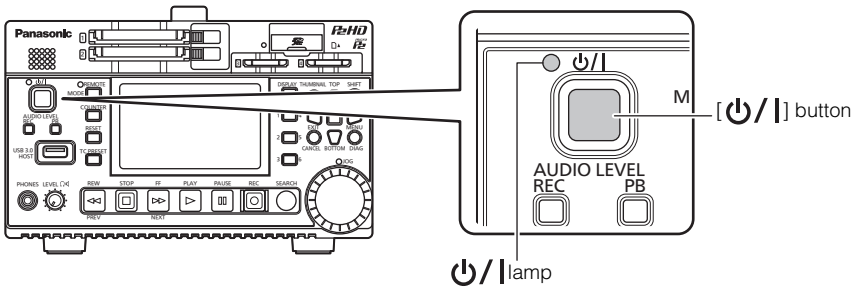
If the fan is stopped while the power is on, the “FAN STOPPED” warning is displayed. The unit will operate even if the fan is stopped. However, please stop using the unit immediately.

Preparation

How to Turn On/Off the Power

Turning On the Power

From the power-off state, press the [⏻/❙] button to turn on the power.
After startup, the ⏻/❙ lamp lights green.



◆Note:

The following messages appear during startup.

- "STARTING SYSTEM...": Flashes during startup.
- "AUTO POWER OFF = ∗ min": The time set in the "AUTO POWER OFF" (→ page 91) menu item is displayed instead of "∗." When the menu item setting is set to OFF, this message is not displayed.

Turning Off the Power

From the power-on state, press the [⏻/❙] button for at least two seconds to turn off the power.
The ⏻/❙ lamp flashes during the power-off process, and then turns off.

Auto Power Off during Operation

The unit has a function to automatically turn the power off after a short period of time if no operation such as recording, playback, copying, or formatting is performed during that time. To resume operation after the power turns off automatically, turn the power on again.

◆Note:

- The time until the power turns off can be set in the "AUTO POWER OFF" (→ page 91) menu item.

Setting the Year, Month, Day, and Time

Set the clock before using the unit the first time.

1 Press the [⏻/|] button on the unit to turn on the power.

2 Press the [MENU] button to open the menu.
(→ "Menu Operations" page 79)

3 Use the cursor buttons to select the "I/F SETUP" - "CLOCK" (→ page 91) menu item and then press the [SET] button.
The clock setting screen appears. The default values are the current time settings.

4 Use the left and right cursor buttons to select the digits to be set.
- Display is in the order of hour/minute/month/day/year/time zone.
- For the time zone, set the difference in hours from Greenwich Mean Time.
- The time is displayed in the 24-hour format.

5 Use the up and down cursor buttons to set the year, month, day, time, and time zone.

6 After configuring the settings, press the [SET] button.
Pressing the [SET] button sets the clock to the changed time.

◆**Note:**
- The clock is affected by deviation so check that the time is correct before use.
- When an accurate time is required, check and reset the time before use.

■ Time zone

Time difference	Area	Time difference	Area
00:00	Greenwich	+01:00	Central Europe
-00:30		+01:30	
-01:00	Azores Islands	+02:00	Eastern Europe
-01:30		+02:30	
-02:00	Mid-Atlantic	+03:00	Moscow
-02:30		+03:30	Tehran
-03:00	Buenos Aires	+04:00	Abu Dhabi
-03:30	Newfoundland Island	+04:30	Kabul
-04:00	Halifax	+05:00	Islamabad
-04:30		+05:30	Bombay
-05:00	New York	+06:00	Dacca
-05:30		+06:30	Yangon
-06:00	Chicago	+07:00	Bangkok
-06:30		+07:30	
-07:00	Denver	+08:00	Beijing
-07:30		+08:30	
-08:00	Los Angeles	+09:00	Tokyo
-08:30		+09:30	Darwin
-09:00	Alaska	+10:00	Guam
-09:30	Marquesas Islands	+10:30	Lord Howe Island
-10:00	Hawaii	+11:00	Solomon Islands
-10:30		+11:30	Norfolk Island
-11:00	Midway Island	+12:00	New Zealand
-11:30		+12:45	Chatham Islands
-12:00	Kwajalein	+13:00	
+00:30			

P2 Cards

P2 Card Access Lamp and P2 Card Status

P2 Card Access Lamp	P2 Card Status	
Lights green	Recording possible	Both writing and reading are possible.
Lights orange	Recording target	Writing and reading are enabled and currently recording target.
Flashing orange	Card being accessed	Writing or reading is in progress.
Fast flashing orange	Card being recognized	The P2 card is being recognized.
Slow flashing green	Card full	There is no available space on the P2 card. Only reading is possible.
	Write protected	The write-protect switch on the P2 card is set to Protect. Only reading is possible.
	Card not supported for recording	Recording is not possible with the currently set recording format because an SD memory card or other unsupported card is inserted. To record, change the recording format or use a P2 card.
	Slot not target for recording	A card has been inserted in a different slot from that of "REC MEDIA" (P2/microP2) (→ page 87) of the "REC/PB SETUP" menu item.
Off	Card not supported	The card cannot be used with the unit. Replace the card.
	Format invalid	The P2 card is not formatted properly. Reformat it.
	No card	A P2 card is not inserted. Waiting for the card to be recognized.
	Card cannot be authenticated	A micorP2 memory card for which authentication is not possible. Refer to “Manual and Automatic CPS Authentication” (→ page 46) and then perform authentication.
	No USB access	The P2 card is not accessible using USB device mode.

◆**Note:**

“FORMAT ERROR!” or “NOT SUPPORTED!” may appear if a microP2 memory card is inserted slowly. Should this happen, reinsert it.

P2 Card Recording Times

P2 cards supported by the unit

The unit supports separately sold P2 memory cards and microP2 memory cards of 4 GB to 64 GB. (As of October 2013)

◆**Note:**

- When AVC-Intra100 of 1080/60P and 1080/50P is selected, recording to the following P2 cards is not possible.
  - H, R, A, and E series P2 memory cards.
- AJ-P2C002SG (2 GB) cards cannot be used.
- The unit may need to be updated depending on the type of P2 card.
- For the latest information not available in the Operating Instructions, visit the website. (→ “Website URL” page 8)

P2 card recording times

(Example of using one 64 GB card)

"LINE&FREQ" setting (recording format)	"REC FORMAT" setting (codec)	Recording duration
1080-59.94P, 1080-50P	AVC-I100	Approx. 32 minutes
	AVC-G25*1	Approx. 110 minutes
1080-59.94i, 1080-50i	AVC-I100	Approx. 64 minutes
	AVC-G25	Approx. 220 minutes
480-59.94i, 576-50i	DVCPRO50	Approx. 128 minutes
	DVCPRO	Approx. 256 minutes

*1 Support will be provided via a version update in the future.

◆**Note:**

- The recording times for 32 GB, 16 GB, and 8 GB P2 cards are a 1/2, 1/4, and 1/8th of those shown above, respectively.
- The displayed sizes include, for example, the management area so the amount of space available for recording will be less than the above.

Dividing of clips recorded to P2 cards

When an 8 GB or larger P2 card is used with the unit, continuous recordings longer than the durations shown in the table below result in automatic division of the recording into multiple clips. However, on a P2 device, such recordings are handled as a single clip for thumbnail operations (display, delete, repair, etc.). Such recordings may be displayed as separate clips in non-linear editing software or on a PC or other device.
When recording to a microP2 memory card exceeding 32 GB using the AVC-LongG codec, you can enable continuous recording as the same clip in the "FILE SPLIT" (→ page 87) menu item.

Recording formats (excluding native recording)	Continuous recording duration
AVC-I100 (1080P)	Approx. 3 minutes
AVC-I100 (1080i), DVCPRO HD	Approx. 5 minutes
AVC-G50, AVC-I50, DVCPRO50	Approx. 10 minutes
AVC-G25, DVCPRO, DV	Approx. 20 minutes

Content Protection System (CPS)

microP2 memory cards support the content protection system (CPS), which is a security function that prevents data leakage to third parties by recording in an encrypted format.
To use the CPS function, you need to set a CPS password and enable the microP2 memory card authentication function (→ "Manual and Automatic CPS Authentication" page 46) and encrypted format function (→ "Formatting P2 Cards and SD Memory Cards" page 45) on the unit. microP2 memory cards in an encrypted format are authenticated automatically to enable use as microP2 memory cards for recording and playback only on devices for which the same CPS password is set. For details on CPS passwords, refer to "Manual and Automatic CPS Authentication" (→ page 46).

◆**Note:**

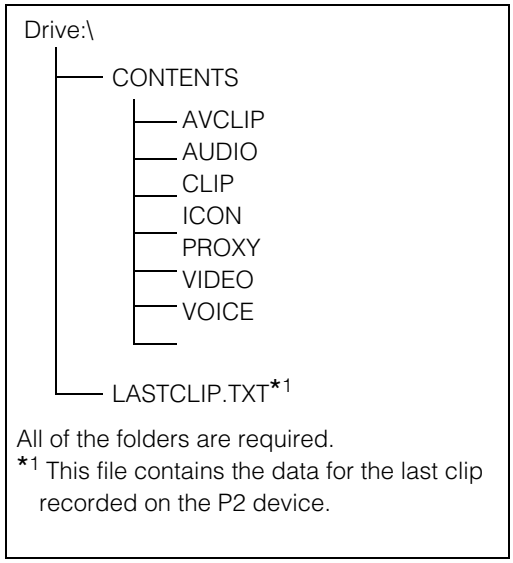
- Up to 16 characters can be set for the password.
- An encrypted microP2 memory card cannot be recognized in an SD slot of a PC.
- If an authentication error occurs, perform authentication again with the correct password, format the card to enable use as storage media, or eject it from the device. Do not perform any operation other than manual authentication or formatting while a card for which an authentication error has occurred is inserted.
- To access an encrypted microP2 memory card from a PC when in USB device mode, perform authentication for the microP2 memory card with P2 Viewer Plus.

Handling of Recording Data

P2 memory cards and microP2 memory cards are semiconductor memory cards designed for the P2 series, Panasonic's line of professional video and broadcast equipment.

■Recording data in the P2 format is ideally suited for computer processing because it is a file format. The file structure includes not only video and audio data recorded in the unique MXF file format but also various important information, and has the folder configuration shown on the right.

If any of this data is changed or deleted, a problem may occur, such as the data being unable to be recognized as P2 data or the card no longer being able to be used in a P2 device.



All of the folders are required.
*1 This file contains the data for the last clip recorded on the P2 device.

■A P2 card that has been formatted in other than a microP2 memory card compatible device will not contain the AVCLIP folder. For a P2 card without an AVCLIP folder, the folder will be created automatically when recording is performed on a microP2 memory card compatible device.

■To prevent data loss when transferring the data on a P2 card to a PC or other device or when writing the data stored on a PC back to a P2 card, be sure to use the dedicated P2 Viewer Plus software, which can be downloaded from the Panasonic website.
For the URL, refer to (→ "**Website URL**" page 8)

■When transferring data to a PC using a general IT tool such as Microsoft Windows Explorer or Apple Finder, observe the following. Be sure to use P2 Viewer Plus to write the data back to a P2 card.

- Process the CONTENTS folder and the LASTCLIP.TXT file together.
  Do not modify any data under the CONTENTS folder.
  When copying the data, be sure to copy both the CONTENTS folder and the LASTCLIP.TXT file together.
- When transferring the data from multiple P2 cards to a PC, create a separate folder for each P2 card to prevent the overwriting of clips with identical names.
- Do not delete data on a P2 card.
- Be sure to use a P2 device or P2 Viewer Plus to format P2 cards.

Using SD/SDHC/SDXC Memory Cards

Use only SD, SDHC , and SDXC*1 memory cards that comply with the SD, SDHC, and SDXC*3 standards in the unit. Memory cards other than SD, SDHC, and SDXC cards (for example, MultiMediaCard*2) cannot be used.

*1 The SDHC memory card is a new card standard (version 2.0), established by the SD Card Association in 2006, for memory cards with capacities exceeding 2 GB.

*2 MultiMediaCard (MMC) is a registered trademark of Infineon Technologies AG.

*3 The SDXC memory card is a new standard (version 3.0), established by the SD Card Association in 2009, for memory cards with capacities exceeding 32 GB.

- When using a miniSD, miniSDHC, microSD, microSDHC, or microSDXC card in the unit, be sure to use it with the correct dedicated adapter attached. (Note that the unit will not operate normally when only an adaptor without a card is inserted.)
  Please note that a miniSD, miniSDHC, microSD, microSDHC, or microSDXC card will not operate normally in the unit when in AVCHD playback mode, even if the dedicated adapter is attached.
- Be sure to use the unit to format cards.
- The unit supports SD, SDHC, and SDXC memory card of the following sizes.

  SD: 8 MB to 2 GB
  SDHC: 4 GB to 32 GB
  SDXC: Over 32 GB
  Use of Panasonic SD, SDHC, and SDXC memory cards and miniSD, miniSDHC, microSD, microSDHC, and microSDXC cards is recommended.

◆**Note:**

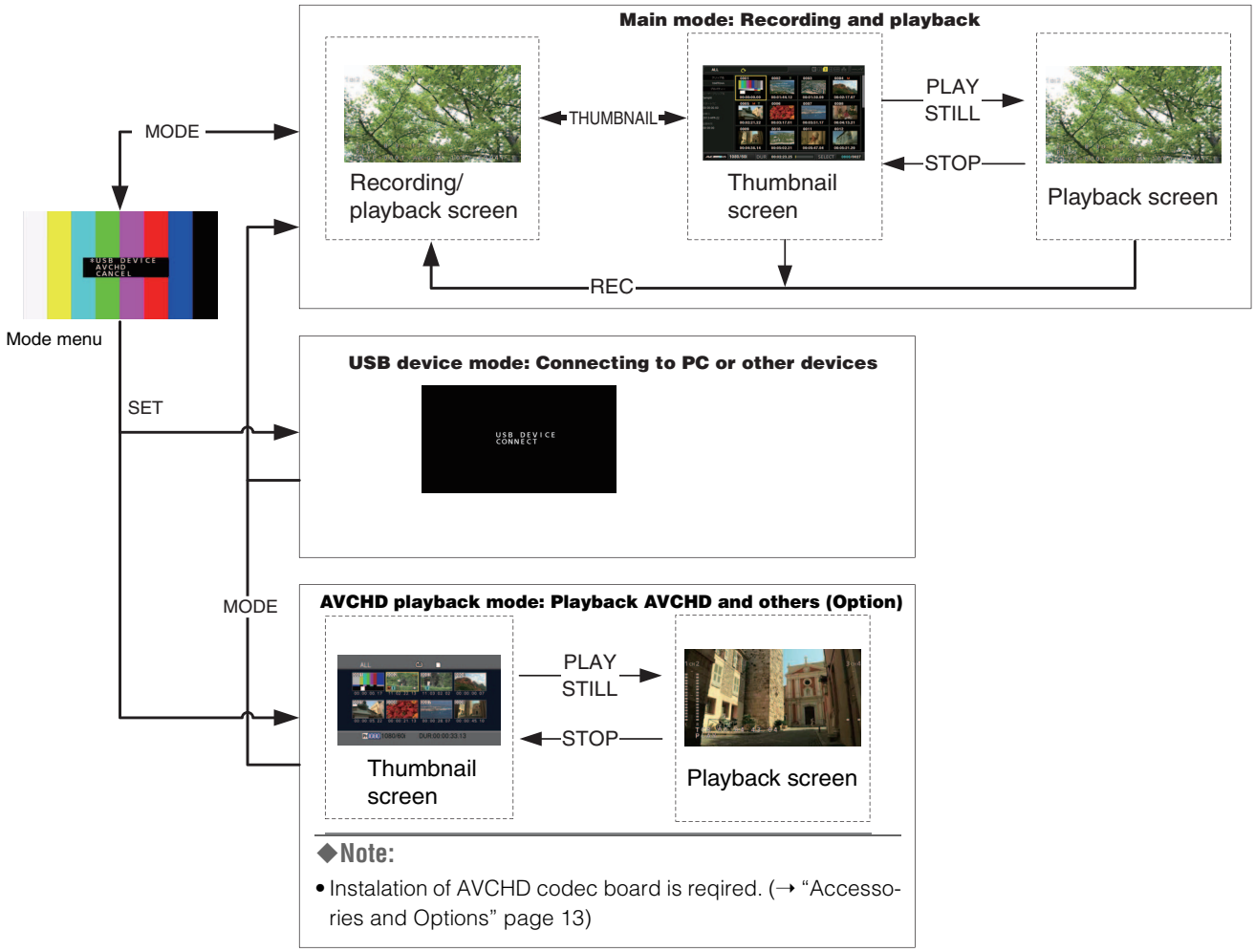
When using the AVCHD option, also check “AVCHD Playback Mode” (→ page 65).

- The latest information on the unit and supported memory cards is available on our P2 Support website.
  For the URL, refer to (→ “**Website URL**” page 8)

Available Modes

This unit comes with three modes: Main mode, USB device mode, and AVCHD playback mode.
You can select or change the mode by selecting one of the menu items displayed when you press the MODE button. Main mode has a thumbnail screen for displaying and managing clip thumbnails and playing clips and a recording/playback screen for recording and playback.
The figure below shows an overview of each mode.

- Recording/playback screen: Displays video, time code, and other information and enables recording and playback.
- Thumbnail screen: Displays clip thumbnails, various properties, and other information and enables the management and playback of clips.



◆Note:

- Instalation of AVCHD codec board is reqired. (→ “Accessories and Options” page 13)

Main Mode

Recording/Playback Screen

Use the recording/playback screen for the following.
- Recording to P2 cards
- Playing back all cards in the order they were recorded

Recording Clips

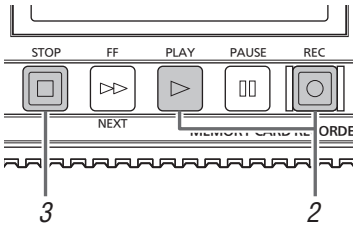
Record audio and video as clips.

Recording clips

Before you start recording, set the recording frequency, format, slot for recording, input signal, and other settings in the menu.
(→ Setup Menu “SYSTEM MODE” page 105, “REC/PB” page 86)

◆**Note:**

If analog is selected for audio input, an 8-channel audio file (may be 4 channels depending on the format) will be created but no sound will be recorded on any channel other than channels 1 and 2.



1 Insert a P2 card.

2 Press the [PLAY] [▷] button while holding down the [REC] [○] button.

Recording begins on the P2 card in the slot with the access lamp is lit orange.

◆**Note:**

Setting the “PROXY SETUP” - “REC MEDIA” (→ page 88) menu item to “P2” or “P2&SD” and then recording will start proxy recording simultaneously with the recording of the main material. (→ “Proxy recording” page 29)

3 Press the [STOP] [□] button to stop recording.

◆**Note:**

Recording to a mixture of the P2 memory card slots (1 and 2) and microP2 memory cards slots (3 and 4) is not possible. Select the recording target slots in the “REC/PB SETUP” - “REC MEDIA” (→ page 87) menu item.

■ Adjusting the recording audio levels

Follow the procedure below to change the volume level for recording.

1. Press the [AUDIO LEVEL-REC] button.

   The recording volume appears.

2. Turn the multi control dial.

   The levels of all channels can be adjusted.

◆**Note:**

Operation is also possible with the up and down cursor buttons.

3. Use the left or right cursor button to select an audio channel.

   The selected channel number flashes. Each of the channels can be adjusted.

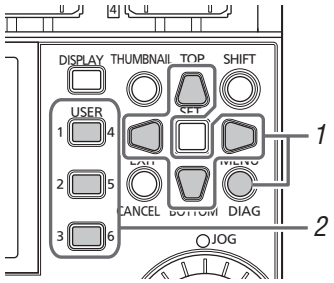
4. After adjustment is finished, press the [AUDIO LEVEL - REC] button or [EXIT] button.

   The setting values are saved and the displayed information disappears.

◆**Note:**
- The setting values do not change when you turn off the power.
- If you press the [RESET] button during the changing of the audio levels, the default values are restored.

■ Changing the recording slot

The recording target slot can be changed during recording or when recording is stopped.



1. Assign the SLOT SEL function to a [USER] button in the “USER BUTTON” (→ page 99) menu item.

2. Press the [USER] button during recording or when recording is stopped.

   The recording slot changes with each press of the button.

◆**Note:**
- When you do not perform SLOT SELECT right after switching the recording target P2 card, “SLOT SEL INVALID” will appear on the third line of the OSD if the “OSD TC SELECT” (→ page 96) menu item is set to “T&S&M.”
- The slots that can be switched with the SLOT SEL function are limited to those selected in the “REC/PB SETUP” - “REC MEDIA” (→ page 87) menu item.

Various types of recording

■ Hot swap recording

When P2 cards are inserted into both of the two P2 memory card slots or microP2 memory card slots specified in the "REC/PB SETUP" - "REC MEDIA" (→ page 87) menu item, you can make one continuous recording that spans two cards. You can also record continuously on three or more cards (hot swap recording) by replacing one card while recording on the other.

◆**Note:**

- P2 card recognition may be delayed and prevent hot swap recording depending on the timing at which a P2 card is inserted in the empty slot (immediately prior to or after recording continues onto the other card).
  It is recommended to insert a P2 card when there is still at least 1 minute of time left on the card currently being used for recording.
- The unit does not support hot-swapping during playback.

■ LOOP REC

LOOP REC is a function that records continuously while successively switching the card target for recording when two P2 cards are inserted in the P2 memory card slots or microP2 memory card slots. Recording can be performed continuously by returning to the first card when the available space on the P2 cards has been used up and then overwriting the old recording with the new recording.
To use the LOOP REC function, select "LOOP" in the "RECORDING" (→ page 86) menu item.

◆**Note:**

- Use P2 cards with at least one minute of free space for loop recording.
- During loop recording, all of the P2 card access lamps for the P2 cards used for recording are lit orange. Note that removing any of the P2 cards will stop loop recording.

When "LOOP" is selected in the "RECORDING" menu item

- "LOOP" is displayed on the second line of the OSD. However, even when "LOOP" is selected in "RECORDING," the loop recording will not work if only one card is inserted or the remaining recording time on a card is less than 1 minute. Should this happen, "LOOP" will flash on the OSD.
- The remaining space of P2 cards is indicated as the standard guaranteed recording time according to the recording format. When loop recording is stopped right after deleting old data, the actual remaining time may be shorter than indicated.
- Proxy recording cannot be performed.

During loop recording

- Shot marks cannot be added or deleted. Also, text memos cannot be added.

- Support for using the loop recording function when the "REC FORMAT" setting value is "AVC-G50" or "AVC-G25" is planned to be provided at a later date via a version upgrade.

Canceling loop recording mode

- Select "NORMAL" in the "RECORDING" menu item.

■ AUTO REC

When a camera compatible with the function is connected via HD SDI, starting and stopping recording on the unit can be automatically controlled using the REC START / STOP function on the camera.

1. Match the "AUTO REC" (→ page 86) menu item to the camera to be used.
2. Press the [REC] ○ button and [PAUSE] ▯▯ button on the unit simultaneously to switch to REC PAUSE mode.
3. Press the [REMOTE] button to set REMOTE.
   Now you can start and stop recording on the unit using the REC START / STOP function on the camera.

Proxy recording

Simultaneously record video as well as time-code data and other real-time data in MPEG4 format or H.264 format to a P2 card or SD memory card separately from the main video and audio material recorded with the unit.
(→ "PROXY SETUP" page 88 menu item)

■ Recording modes and recording signals (video and audio)

Recording mode	Video			Audio		
	Resolution	Codec	Bit rate	Codec	Number of channels	Bit rate per channel
STD 2CH MP4	320 x 240 (QVGA)	MPEG-4 Simple Profile	1500 kbps	AAC-LC	2 channels	64 kbps
LOW 2CH MOV	1080i mode 480 x 270 1080 60/50p mode 320 x 180	H.264 Baseline Profile	800 kbps	AAC-LC	2 channels	64 kbps
HQ 2CH MOV	640 x 360	H.264 High Profile	1500 kbps	AAC-LC	2 channels	64 kbps
HQ 4CH MOV	640 x 360	H.264 High Profile	1500 kbps	AAC-LC	4 channels	64 kbps
SHQ 2CH MOV	960 x 540	H.264 High Profile	3500 kbps	Linear PCM	2 channels	768 kbps

■ Recording proxy data

Set the "PROXY SETUP" - "REC MEDIA" (→ page 88) menu item to "P2" or "P2&SD" and then press the [PLAY] ▷ button while holding down the [REC] ○ button to start proxy recording simultaneously with the recording of the main material.

- You can check detailed information on the recorded proxy data from the properties of the clip.
  (→ "Viewing the clip metadata information" page 41)
- Proxy data is recorded to a P2 card or SD memory card as a video and audio file and a real-time data file.
  Video and audio file:
  ∗∗∗∗∗∗∗∗.MP4 or ∗∗∗∗∗∗∗∗.MOV
  Real-time metadata file: ∗∗∗∗∗∗∗∗.BIN
  The time code, user bits, and UMID information are recorded on a frame basis.

◆**Note:**

- When recording proxy data to an SD memory card, use an SD memory card of class 2 or above.
- The SD memory card access lamp lights green during the recording of proxy data to the SD memory card.
- If short recordings are repeated, the available recording time may decrease significantly compared to the available space.
- Check the number of clips recorded to the SD memory card in "NUMBER OF CLIP" of the "SD CARD PROPERTY" (→ page 102) menu item. When the number of clips becomes 1,000 or more, proxy data cannot be recorded to the SD memory card even if there is free space remaining.
- Shot marks and text memos cannot be added to clips in an SD memory card.
- Even if you delete the clips recorded to the P2 card in the thumbnail screen, the proxy data recorded to the SD memory card will not be deleted.
- Proxy recording cannot be performed during loop recording.

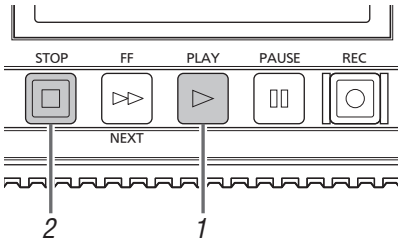
■ Checking proxy data

- The P indicator is displayed for a clip of material for which proxy data recording was performed.
- Check the proxy data in P2 Viewer Plus. The data may not be able to be checked depending on the version of P2 Viewer Plus. For information on P2 Viewer Plus, visit the Panasonic website. (→ "Website URL" page 8)
- Proxy data cannot be played with the unit.

Playing Back Clips

Playback

Before you start playback, set the playback frequency, format, and other settings in the menu. (→ Setup Menu "SYSTEM MODE" page 105)



1 Press the [PLAY] [▷] button.

Playback begins. Clips play back in the order they were recorded.

◆**Note:**

- Pressing the [REW] [◁◁] button instead of the [PLAY] [▷] button rewinds playback, while pressing the [FF] [▷▷] button fast forwards playback.
- Video and audio playback may be disrupted between clips in different video formats (1080i, 1080p, etc.) or compression formats.
- When clips with the same video format but different audio bit rates are played back continuously, the audio between clips will be muted.

2 Press the [STOP] [□] button.

Playback stops and the input video (EE) is displayed.

◆**Note:**

To show the image where playback stopped (PB image), set the "STOP EE SEL" (→ page 87) menu item to "PB."

■ Adjusting the playback audio levels

Follow the procedure below to change the playback levels.

1. Press the [AUDIO LEVEL-PB] button.

   The playback volume appears.

2. Turn the multi control dial.

   The levels of all channels can be adjusted.

◆**Note:**

Operation is also possible with the up and down cursor buttons.

3. Use the left or right cursor button to select an audio channel.

   The selected channel number flashes. Each of the channels can be adjusted.

4. After adjustment is finished, press the [AUDIO LEVEL - PB] button or [EXIT] button.

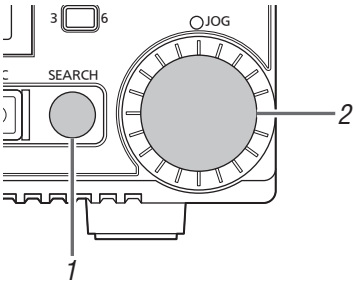
   The setting values are saved and the displayed information disappears.

◆**Note:**

- The setting values do not change when you turn off the power.
- If you press the multi control dial during the changing of the volume levels, the default values are restored.

Variable speed playback

The playback speed can be varied to search for a scene.



1 Press the [SEARCH] button during STOP/STILL/PLAY.

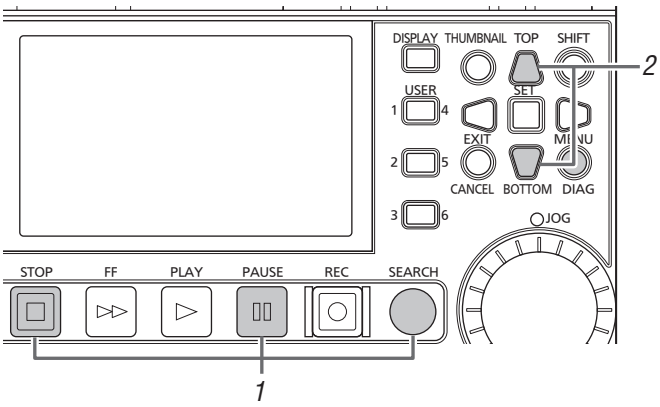
The mode becomes STILL (SHTL 0.0) and a still image is output.

2 Turn the multi control dial to change the playback speed.

The speed changes in accordance with how much the dial is turned.

- Audio is not played back at speeds faster than 10 times normal speed.
- Turning the dial clockwise changes the speed in the forward direction and turning it counterclockwise changes the speed in the backward direction.
- Press the [PAUSE] button to set the speed to the 0 state. To return to normal playback, press the [PLAY] [▷] button.
- When the multi control dial is pressed in variable speed mode, the JOG lamp lights and the mode becomes JOG mode. Variable playback is performed in accordance with the speed at which the dial is turned.

Frame-by-frame playback



1 Press the [PAUSE] [▯▯] button, [SEARCH] button, and [STOP] [□] button (when "STOP EE SEL" - "PB" is set) to switch to still image mode.

2 Press the up or down cursor button.

- The up cursor button performs frame-by-frame playback in the forward direction and the down cursor button performs frame-by-frame playback in the backward direction.
- Holding down a cursor button performs continuous frame-by-frame playback. To return to normal playback, press the [PLAY] [▷] button.

One clip playback (ONE CLIP PLAY)

1 Assign the "ONE CLIP PLAY" function to a [USER] button in the "USER BUTTON" menu.

(→ Setup Menu "USER BUTTON" page 99)

2 Press the [PAUSE] [▯▯] button while a thumbnail is displayed or from the thumbnail display screen and then press the [USER] button with "ONE CLIP PLAY" assigned when in still image mode.

- Only the clip at the cursor position or current position is played.
- Only STOP is enabled during this playback.

◆Note:

One clip playback is also performed when the [PLAY] [▷] button is pressed while holding down the [SHIFT] button.

Clip and text memo forward/rewind

1 Switch to playback or a still image or other image display state.

2 Press the [PREV] button or [NEXT] button.

The clip beginning or text memo position is located in accordance with the "SEEK POS SEL" (→ page 87) menu item.

Repeat playback

Play back playable clips repeatedly.

1 Press [MENU].

2 Set the "REPEAT PLAY" (→ page 86) menu item to "ON."

3 Close the menu.

4 Press the [PLAY] [▷] button to start playback.

All clips are played repeatedly.

- Repeat playback continues until the [STOP] [□] button is pressed.
- Repeat playback is not performed during playback other than normal playback, for example, variable playback, and playback stops at the beginning (BOS) or end (EOS) of a playable clip.
- During repeat playback, "REPEAT PLAY" is displayed for the operating status on the OSD.

Thumbnail Screen

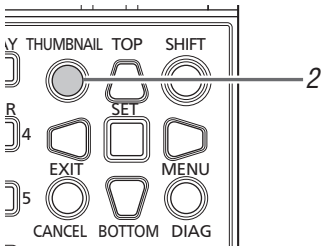
This unit has a thumbnail screen for managing clips. A “clip” consists of a set of video, audio, and additional information such as metadata, and a “shot” is a clip generated by a single normal start-to-stop recording operation. A shot that spans multiple P2 cards is handled as one clip.
The thumbnail screen displays a list of thumbnails of recorded clips. You can perform the following clip management operations while checking these thumbnails.

- Playback of clips on P2 cards
- Simple playback of clips on a storage device
- Copying and deleting clips
- Adding text memos to clips
- Checking and deleting text memos
- Viewing and deleting shot marks
- Formatting P2 cards
- Viewing clip properties
- Viewing P2 card status

◆**Note:**

- Thumbnails are generated from only a sample of the recorded video. Therefore, they appear coarser than the actual video.
- The menu items for thumbnails can be set when the thumbnail screen is displayed.

Displaying the Thumbnail Screen.



1 Press the [⏻/ |] button on the unit to turn on the power.

◆**Note:**

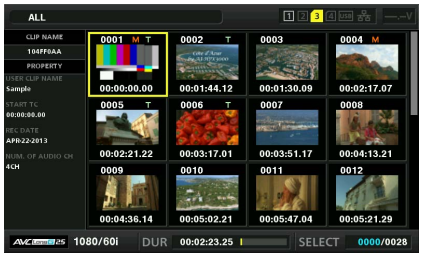
If “THUMBNAIL” is selected in the “POWER ON GUI” (→ page 91) menu item, the thumbnail screen will appear at power-on.

2 Press the [THUMBNAIL] button.

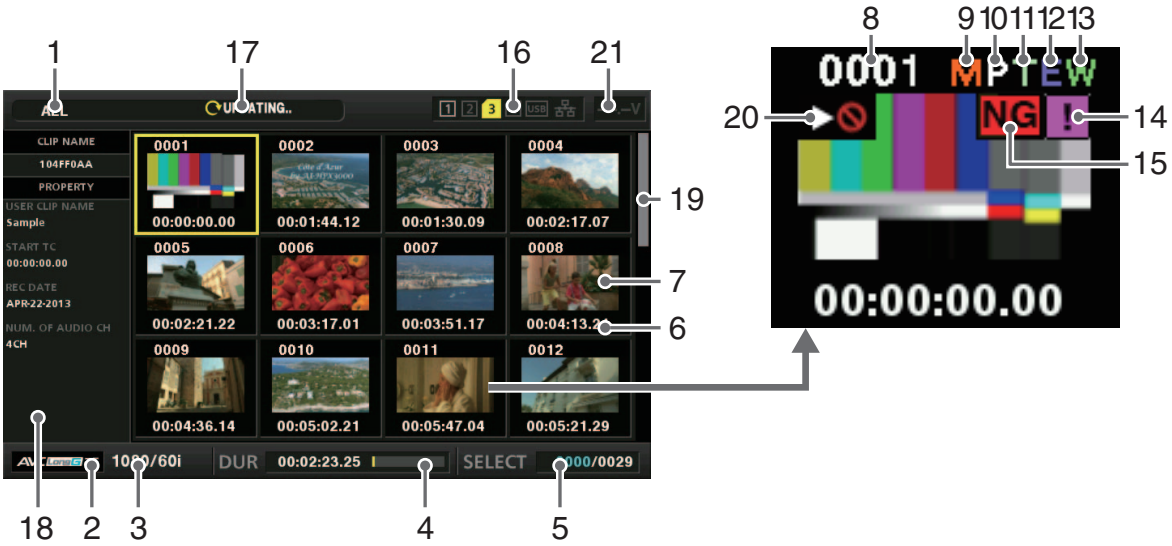
The thumbnail screen appears on the LCD monitor.
Press the [THUMBNAIL] button again to close the thumbnail screen and return to the record/playback screen (video).

◆**Note:**

In the “OSD OUTPUT” (→ page 96) menu item, you can select output to VIDEO OUT, SDI MON OUT, HDMI OUT, SDI OUT, etc.



Names and Functions of the Parts of the Thumbnail Screen



1. Display status

The following information is displayed on the screen.

ALL:	All clips
SAME FORMAT:	Clips with the same format as the system
SELECT:	Clips selected with the [SET] button
MARKER:	Clips with shot markers added
TEXT MEMO:	Clips with text memo data added
SLOT n:	Clips on the P2 card in slot No. n
P2 / REMAIN:	Media information (amount of remaining free space)
P2 / USED:	Media information (amount of space used)
META DATA:	Set metadata

Procedures for switching between displays
(→ “Changing the Thumbnail Display” page 35)

2. Recording mode

Indicates the recording mode of the clip at the cursor position.

3. System format

Indicates the recording format of the clip at the cursor position.

4. Duration

Indicates the length (duration) of the clip at the cursor position and the rough current playback position in relation to the length of the clip.
Playback position display is enabled when “RESUME” is selected in the “PB POSITION” (→ page 84) menu item.
When the playback start position is not the beginning of the clip, the rough current playback position is indicated.

5. Number of selected clips

Indicates the number of selected clips and the total number of clips.

6. Clip information display

One of the following is indicated: TC (time code) , UB (user bits) at the start of clip recording , time of shooting, day of shooting , date and time of shooting , clip name , user clip name , and slot number.
(→ “Changing the Thumbnail Display” page 35)

7. Thumbnail

Shows the thumbnail recorded for each clip. You can use the EXCH.THUMBNAIL function to change this thumbnail.
(→ “Changing the Thumbnail Display” page 35)

8. Clip number

Indicates the numbers assigned to P2 card clips, which are normally assigned in order from the earliest shooting date. For a clip that cannot be played back, the clip number is red and the unplayable indicator is displayed. You can change the order in which clips appear using the function for displaying clips in the order of selection or the SORT function.
(→ “Changing the Thumbnail Display” page 35)

9. M Shot mark indicator

Indicates that a shot mark has been added to the clip.

10. P Proxy indicator

Indicates that proxy data has been additionally recorded for the clip.

11. T Text memo indicator

Indicates that text memo data has been added to the clip.

12. E Edit copy indicator

Indicates an edit-copied clip.

13. W Wide indicator

Indicates a clip recorded at an angle of view of 16:9. However, this is not indicated for an HD format clip.

14. ! Incomplete clip indicator

Indicates that the clip spans multiple P2 cards but one of the cards that contains part of the clip has not been inserted.

15. NG Bad clip and ? Unknown clip indicator

Indicates a clip that became defective because the power was turned off during recording or was damaged for some other reason. Clips with the yellow bad clip (NG) indicator can sometimes be repaired.

(→ "Repairing bad clips" page 40)

Clips with the red clip indicator (NG) cannot be repaired and should be deleted. If deleting is not possible, format the P2 card.

When a clip is not, for example, in the P2 standard format, ? is displayed instead of NG.

16. P2 card slot and storage device or LAN status indication

Indicates the P2 card and storage device or LAN connection status as shown below.

1 to 4 (White)	The numbers of P2 card slots that contain P2 cards are indicated in white.
3 (Yellow)	The number of the P2 card slot of the P2 card that contains the clip at the cursor position is indicated in yellow. When a clip spans multiple P2 cards, the numbers of all the slots with cards that contain the clip are indicated. **◆Note:** For an inserted P2 card such as the following, the slot number has a red frame. • "RUNDOWN CARD" A P2 card for which the maximum number of overwrites has been exceeded. • "DIR ENTRY NG CARD" A P2 card with an unsupported directory structure. • "AUTH NG CARD" A microP2 memory card for which the CPS password cannot be authenticated.
USB (Gray)	Gray indicates that a storage device is not connected.
USB (White)	White indicates that a storage device is available.
USB (Yellow)	Yellow indicates that the clips on a storage device are displayed as thumbnails.
USB (Red)	Red indicates that a storage device is connected but is not available.
(Gray)	Gray indicates that the LAN setting is OFF.
(White)	White indicates that the LAN setting is ON.
(Yellow)	Yellow indicates that a LAN cable is connected and that there is a link.
(Red)	Red indicates an error with the unit. Consult your dealer because the unit may have malfunctioned.

17. Status message

Displays a message indicating the processing status. For example, the “UPDATING” text message and a rotating icon are displayed during screen updating.

18. Simple property indication

Displays the properties of the clip at the cursor position. This is displayed when the “THUMBNAIL SIZE” (→ page 84) menu item is set to “SMALL.”

You can select the information to display from the menu. (→ “Setting the items to display as properties” page 36)

◆Note:

When there are more characters than can be displayed, only the range of characters that can be displayed are shown.

19. Thumbnail scroll bar

Indicates the location of the currently displayed thumbnail among all of the thumbnails.

20. Unplayable indicator

Indicates a clip that cannot be played because, for example, the frequency differs from that of the system.

21. DC input voltage indication

Indicates the input voltage value when the “EXT DC IN SELECT” (→ page 98) menu item is set to other than “DC PWR SUPPLY.”

When other than “DC PWR SUPPLY” is set, the DC voltage value is indicated even with AC power supply input.

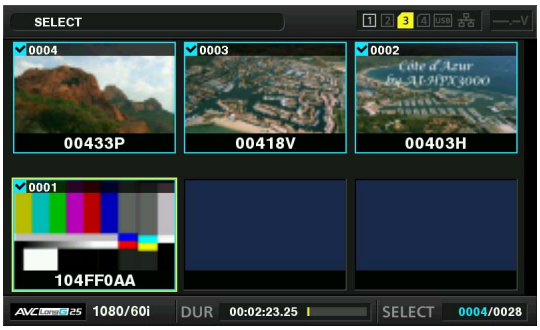
Changing the Thumbnail Display

The thumbnail screen can be customized according to the operating conditions to improve efficiency.

Example:

- Set the settings of the “THUMBNAIL SETUP” (→ page 84) menu item as shown below.
  Set “INDICATOR” to “ALL HIDE”
  Set “DATA DISPLAY” to “CLIP NAME”
  Set “THUMBNAIL SIZE” to “LARGE”
- Set the “REPOSITION” (→ page 82) menu item to “SELECTED CLIPS”.

Figure showing the thumbnail screen display example



◆Note:

The thumbnail and OSD output destinations can be switched in “OSD OUTPUT” (→ page 96).

Setting the thumbnails to display

1 Use the cursor buttons to align the cursor with the type of clips you want to display in the “REPOSITION” (→ page 82) menu item.

2 Press the [SET] button.

Setting the thumbnail size

1 Use the cursor buttons to align the cursor with the size of thumbnails you want to display in the “THUMBNAIL SIZE” (→ page 84) menu item.

2 Press the [SET] button.

Setting the display of clip information

The display of clip information can be customized according to purpose.

1 Use the cursor buttons to align the cursor with the item you want to set in the “DATA DISPLAY” (→ page 84) menu item.

2 Press the [SET] button.

Setting the items to display as properties

Set the simplified property display items to display on the left side of a thumbnail.

1 Use the cursor buttons to align the cursor with the “PROPERTY DISP.” (→ page 85) menu item.

2 Press the [SET] button to open the item menu.

All selected items are indicated by check marks.

3 Press the [SET] button to add a check mark for an item you want to display.

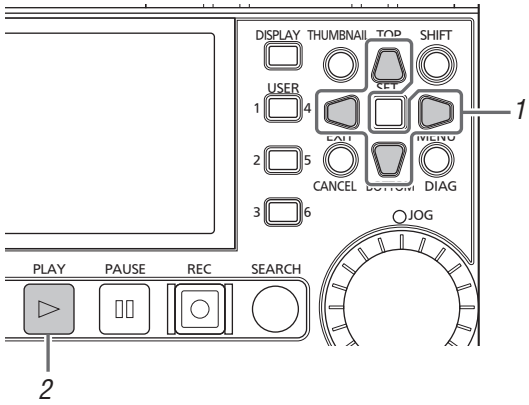
Pressing the [SET] button adds a check mark to an unchecked item and clears the check mark from a checked item.

◆Note:

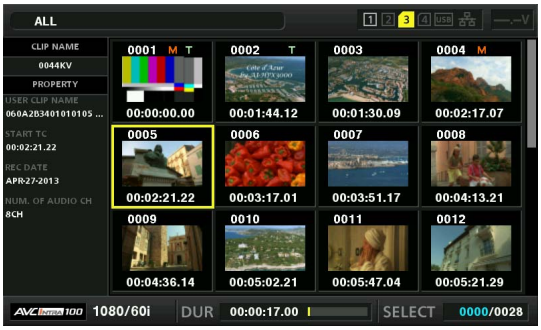
- Up to six items can be displayed simultaneously.
- When the sixth item has been selected, no other unchecked item can be selected. Clearing the check mark from a checked item allows you to select another item.

Playing Back Clips

Playback



1 Use the cursor buttons to align the cursor with the clip you want to play.



2 Press the [PLAY] [▷] button.

Playback begins from the clip at the cursor position. After the clip at the cursor position has been played, the subsequent clips are played back in order. When the last clip has been played, the thumbnail screen reappears.

◆Note:

- To play back a clip, you do not need to select it (so that the thumbnail appears inside a blue frame).
- You can change the thumbnail display settings to play back clips only from specified slots or play back only clips with text memos added.
- You can change the order that clips are played back.
  1 Select the clips in the order you want them to be played back.
  2 Select [SELECTED CLIPS] in the “REPOSITION” (→ page 82) menu item to switch the thumbnail display to only the selected clips (in the order they were selected).
- Pressing the [PAUSE] [▯▯] button instead of the [PLAY] [▷] button displays the first frame of the clip as a still image.
- A clip whose clip number is red cannot be played back.
- Pressing the [REW] [◁◁] button instead of the [PLAY] [▷] button rewinds playback, while pressing the [FF] [▷▷] button fast forwards playback.

- Pressing the [STOP] ⊡ button during clip playback stops playback and redisplays the thumbnail screen.
- When playback is stopped, the cursor moves to the clip played prior to stopping.
- Video and audio playback may be disrupted between clips in different video formats (1080i, 1080p, etc.) or compression formats.
- When clips with the same video format but different audio bit rates are played back continuously, the audio between clips will be muted.
- Changing the thumbnail screen to text memo display allows you to start playback from a text memo position.
- You can select the playback start position for playback from thumbnails in the “PB POSITION” (→ page 84) menu item.

Playing back one clip (ONE CLIP PLAY)

When “ONE CLIP PLAY” is assigned to a [USER] button, pressing the [USER] button plays only the clip at the cursor position.(→ “USER BUTTON” page 99)

◆Note:

- When the thumbnail screen is redisplayed after one clip playback ends, the cursor moves to the next clip.
- All buttons except the [STOP] ⊡ button are disabled during one clip playback.
- One clip playback starts from the position set in the “PB POSITION” (→ page 84) menu item.
- When JOG/SHTL is used to display a still image during playback from the thumbnail screen, the [USER] button to which “ONE CLIP PLAY” has been assigned allows you to play to the end of the clip from the position of the still image.
- One clip playback is also performed when the [PLAY] ▷ button is pressed while holding down the [SHIFT] button.

Using variable speed playback and frame-by-frame playback

Operation is the same as in the recording/playback screen. (→ “Variable speed playback” page 30, “Frame-by-frame playback” page 31)

Playing back from a text memo position

1 Select “TEXT MEMO CLIPS” in the “REPOSITION” (→ page 82) menu item.

The thumbnails of clips with text memos are displayed at the top of the LCD monitor. Information on the clip text memo selected with the cursor is displayed at the bottom of the LCD monitor.

Thumbnail display

Blue indicates selected number of text memo clips and white indicates total number of text memo clips.

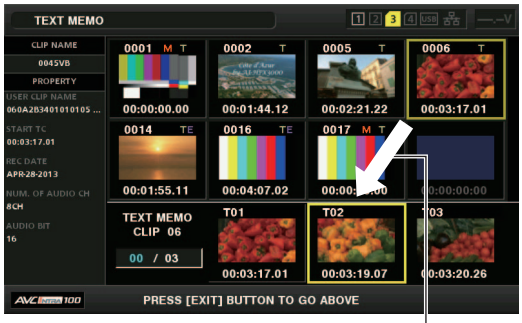
Indicates still images included with the text memos.

◆Note:

- When a text memo clip with different settings for the “SYSTEM MODE” (→ page 105) menu item is displayed, ⚠ may be displayed instead of the thumbnail for the text memo position displayed at the bottom.

2 Select the clip with a text memo that you want play and press the [SET] button.

The cursor moves to the bottom of the LCD monitor.



The cursor moves.

3 When the cursor is at the bottom, use the left or right cursor button to align the cursor with the thumbnail with a text memo that you want to play and then press the [PLAY] ▷ button.

The clip is played back from the time code position of the text memo selected with the cursor. When you press the [STOP] ⊡ button to stop playback or when playback stops upon reaching the end of the clip, the thumbnail screen reappears and the cursor returns to the thumbnail of the text memo where playback was started. Press the [EXIT] button to return the cursor to the top of the thumbnail screen.

◆Note:

All buttons except the [STOP] ⊡ button are disabled during playback.

Selecting and Deselecting Clips

Select the clips you want to process on the thumbnail screen.

Selecting clips

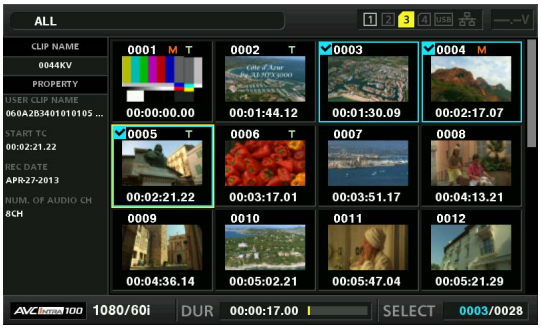
1 Use the cursor buttons to align the yellow frame (cursor) with the target clip.

◆Note:

Press the [TOP] or [BOTTOM] button to move the cursor to the first or last clip.

2 Press the [SET] button.

A light blue frame and ✓ appear on the clip selected with the cursor to indicate that it is selected.



◆Note:

- Repeat steps 1 and 2 to select multiple clips.
- Select a clip, move the cursor to another clip, and press the [SET] button while holding down the [SHIFT] button to select all of the clips from the clip selected first to the cursor position.
- Selecting a clip updates the number of selected clips indicated at the bottom right of the screen.

Deselecting clips

1 Align the cursor with a selected clip and press the [SET] button again.

The selection is canceled.

◆Note:

Press the [CANCEL] button to deselect all of the selected clips.

Adding Text Memos and Shot Marks

A text memo can be added to a clip to mark a specific location of the clip. You can also add a shot mark to a clip to distinguish it from other clips. A text memo or shot mark cannot be added to a clip on a P2 card with the write-protect switch set to Protect.

Adding text memos

When a text memo is added, you can display a thumbnail at the text memo position for playback or copying and seek (move to) the text memo position by pressing the [NEXT] or [PREV] button during video playback.
(→ Setup Menu “SEEK POS SEL” page 87)

1 Assign “TEXT MEMO” to any [USER] button.

It is assigned to USER3 by default.
(→ Setup Menu “USER BUTTON” page 99)

2 Press the [USER] button to which “TEXT MEMO” has been assigned during recording, playback, or thumbnail display.

- Press this button during recording or playback to add a text memo at the position the button was pressed. The OSD displays “TEXT MEMO” (when successful) or “INVALID” (when adding was not possible).
- Pressing this button when the thumbnail screen is displayed adds a text memo at the position of the clip thumbnail (normally the beginning).

◆Note:

- Up to 100 text memos can be added to one clip.
- Pressing the [USER] button to which “TEXT MEMO” has been assigned during playback may temporarily freeze the playback screen. This is normal and not a malfunction.
- Text memos cannot be recorded during loop recording.

Deleting text memos

Changing the thumbnail screen to the text memo display allows you to delete text memos.

1 Change the thumbnail screen to the text memo display.

Select “TEXT MEMO CLIPS” in the “REPOSITION” (→ page 82) menu item.

2 Use the cursor buttons to move to the thumbnail for which you want to delete the text memo and press the [SET] button.

The cursor moves to the bottom.

3 After pressing the [SET] button to select the thumbnail for which you want to delete the text memo, press the [SET] button in the “DELETE” (→ page 82) menu item.

When “DELETE” is assigned to a [USER] button, you can also perform the delete operation by pressing the [USER] button instead of making a menu selection.

4 Select “YES” in the confirmation message.

The text memo is deleted.

Adding shot marks

If you add a shot mark, you will be able to distinguish the clip from other clips because the mark will be displayed.

1 Assign “MARKER” to any [USER] button.

It is assigned to USER6 by default.
(→ Setup Menu “USER BUTTON” page 99)

2 Use the cursor buttons to align the cursor with the target clip.

3 Press the [USER] button to which “MARKER” has been assigned.

Each press of this button turns the shot mark indicator on/off.

◆**Note:**

- A shot mark is added to a clip even if the button is pressed in the recording/playback screen.
- When adding or deleting shot marks for a clip that spans multiple P2 cards, be sure to insert all of the P2 cards that the clip is recorded on.
- Shot marks cannot be added or deleted during loop recording.

Copying Clips

Clips can be copied to P2 cards or a storage device connected via USB.

◆**Note:**

- Do not turn off the power or remove/insert a card during copying. Doing so may result in a bad clip.
- If a bad clip is created, delete it and perform copying again.
- Reconnect incomplete clips before copying.

1 Select a clip to copy.

2 Align the cursor with the copy destination in the list of the “COPY” (→ page 83) menu item and press the [SET] button.

- When multiple clips are selected, the number of selected clips is indicated when you press the [SET] button.
- When the copy destination is a storage device (→ “Connecting an External Device via the USB HOST Port” page 47), select the details of the copy destination.
- When “COPY” is assigned to a [USER] button, you can also perform the copy operation by pressing the [USER] button instead of making a menu selection.

3 Align the cursor with “YES” in the confirmation message and press the [SET] button.

Copying of the clip begins.

◆**Note:**

- To stop copying, press the [SET] or [CANCEL] button to cancel the operation. Partially copied clips at the copy destination are deleted.
- When the same clip (clip with the same GLOBAL CLIP ID) exists in the copy destination because, for example, it has been copied previously, “OVERWRITE” appears. Select “YES” to overwrite or “NO” to cancel copying and press the [SET] button.

4 When the completion message appears, press the [SET] button.

◆**Note:**

- Copying is not performed when any of the following error messages appear.
  - “LACK OF CAPACITY”
    Copying failed because there is insufficient space at the copy destination.
  - “UNKNOWN CONTENTS FORMAT!”
    Copying failed because the selected clips include bad clips.
  - “NO COPY TO SAME CARD!”
    Copying failed because an attempt was made to copy to the same card.
  - “TOO MANY CLIPS!”
    Copying failed because too many clips were selected.
- When copying is performed while a text memo is selected in the text memo display at the bottom, the selected text memo position and the section to the next text memo is copied. When there is no text memo after the selected text memo, the section from the selected text memo to the end of the clip is copied.

Deleting Clips

Use the following procedure to delete unnecessary clips from a P2 card.

1 Select the clip to delete.

2 Use the cursor buttons to align the cursor with the “DELETE” (→ page 82) menu item and press the [SET] button.

3 Align the cursor with “YES” in the confirmation message and press the [SET] button.

All of the selected clips are deleted.

◆**Note:**

- When “DELETE” is assigned to a [USER] button, you can also perform the delete operation by pressing the [USER] button instead of making a menu selection.
- To stop deletion, press the [SET] or [CANCEL] button to cancel the operation. Partially deleted clips cannot be restored by canceling.

Repairing and Reconnecting Clips

Repairing bad clips

The bad indicator (yellow NG) is displayed for any clip with a problem caused by, for example, a sudden power outage during recording. Use the following procedure to repair clips with problems.

1 Select the bad clip to repair.

2 Use the cursor buttons to align the cursor with the “REPAIR” (→ page 83) menu item and press the [SET] button.

3 Align the cursor with “YES” in the confirmation message and press the [SET] button.

Select “NO” to not repair the clip.

◆**Note:**

Some clips are so badly damaged they cannot be repaired. Such clips are indicated by a red indicator (NG).

Reconnecting incomplete clips

A clip that is recorded on multiple P2 cards may become an incomplete clip (! indicator) due to not being recognized as a continuous clip. When this happens, you can use the reconnection function to reconnect the continuous clip segments to restore the original clip.

◆**Note:**

- Incomplete clips occur under the following conditions.
  - When the segments of a continuous clip that are recorded on multiple P2 cards are copied separately for each P2 card.
  - When the segments of a continuous clip that are recorded on multiple cards are copied separately for each card to a storage device and then written back to the P2 cards.

1 Select the incomplete clips to reconnect.

◆**Note:**

Normally, the thumbnails with the incomplete clip indicator (!) are grouped together.

2 Use the cursor buttons to align the cursor with the “RECONNECT” (→ page 83) menu item and press the [SET] button.

3 Align the cursor with “YES” in the confirmation message and press the [SET] button.

Select “NO” to not reconnect the clip segments.

◆**Note:**

When some but not all the clip segments in a clip that consists of three or more clip segments are reconnected, the incomplete clip indicator (!) will remain displayed.

Viewing and Editing the Clip Information

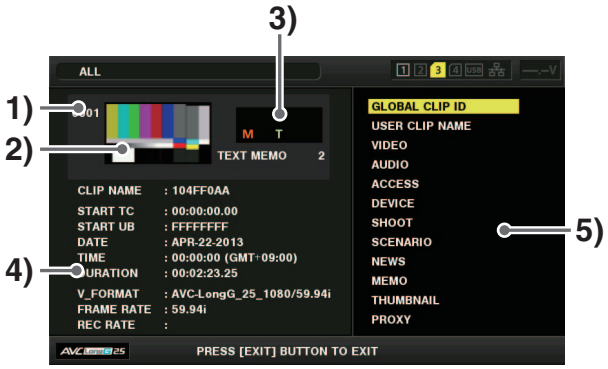
Viewing the clip metadata information

The detailed information of a clip can be displayed and checked on a screen.

1 Use the cursor buttons to align the cursor with the target clip.

2 Use the cursor buttons to align the cursor with the "CLIP PROPERTY" (→ page 82) menu item and press the [SET] button.

The information on the selected clip appears.



1) Clip number

2) Thumbnail

3) Information added to clips

Displays various indicators inserted in the clip and the number of text memos added to the clip. The mark is also displayed if the P2 card containing the clip is write protected.

4) Clip information

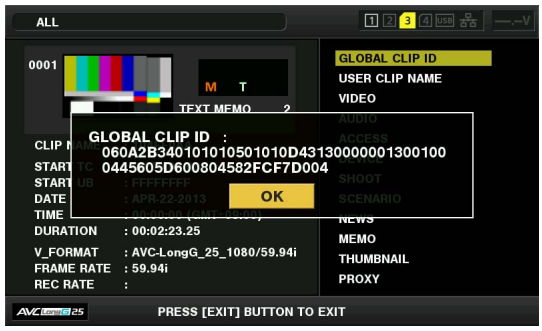
The following information is displayed.

CLIP NAME:	Clip name
START TC:	Time code at start of recording
START UB:	User bit value at start of recording
DATE:	Date recorded
TIME:	Time at start of recording
DURATION:	Clip length
V_FORMAT:	Clip recording format
FRAME RATE:	Playback frame rate
REC RATE:	Recording frame rate

5) Clip metadata

Displays the items for viewing detailed information (clip metadata) on the clip.

3 View the clip metadata if necessary.



Use the cursor buttons to align the cursor with a metadata item and press the [SET] button to display the following information.

GLOBAL CLIP ID:	Global clip ID (This is a unique number, and there is no clip anywhere in the world with the same number.)
USER CLIP NAME:	The **clip name** the user assigns. This normally includes the GLOBAL CLIP ID.
VIDEO:	Video signal system (FRAME RATE, PULL DOWN, ASPECT RATIO)
AUDIO:	Audio channel system and other information (SAMPLING RATE, BIT RATE)
ACCESS:	The date of the last update and other information (**CREATOR**, CREATION DATE, LAST UPDATE DATE, LAST UPDATE PERSON)
DEVICE:	Manufacturer, serial number, and model name of the recording device.
SHOOT:	Date when recording started and ended, etc. (**SHOOTER**, START DATE, END DATE, **ALTITUDE**, **LONGITUDE**, **LATITUDE**, SOURCE, **PLACE NAME**)
SCENARIO:	Program name, scene number, and other information (**PROGRAM NAME**, **SCENE NO.**, **TAKE NO.**)
NEWS:	**Reporter**, **purpose**, and **object**
MEMO:	Text memo number, OFFSET, **PERSON**, **TEXT** **◆Note:** • The position is indicated by the number of frames from the start. • Up to 1000 characters of text can be added, but only the first 500 characters will be displayed. • Use the left or right cursor buttons to move text numbers.
THUMBNAIL:	Frame position (normally, start: 0) of the image used for the thumbnail and the thumbnail size (width, height)

PROXY:	Detailed information on proxy data (Format, video codec, video frame rate, video bit rate, video resolution, aspect ratio, TC superimposition on video, audio codec, audio bit rate, sampling rate, and number of channels)

◆Note:

- The **bold items** are clip metadata that can be changed.

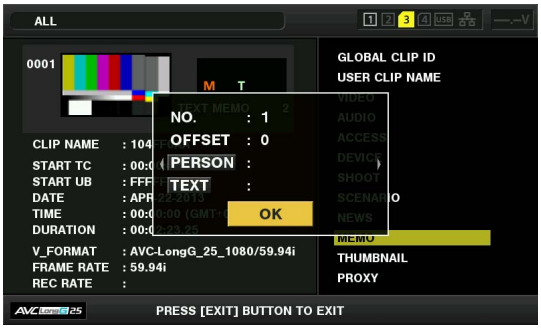
Changing clip metadata

Clip metadata can be changed.

1 Display the clip metadata.

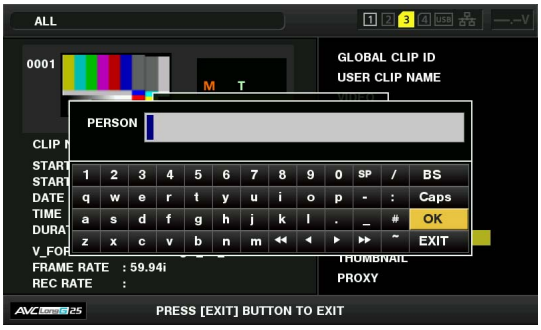
2 Use the cursor buttons to align the cursor with the metadata you want to edit and press the [SET] button.

The data that can be edited is indicated as “TEXT,” like in the figure below.



3 Use the cursor buttons to move to the item you want to change and press the [SET] button.

The screen for changing the metadata appears.
(→ “Using a Keyboard” page 108)


ALL
0001
GLOBAL CLIP ID
USER CLIP NAME
PERSON
1 2 3 4 5 6 7 8 9 0 SP / BS
q w e r t y u i o p - : Caps
a s d f g h j k l . _ # OK
z x c v b n m EXIT
FRAME RATE : 59.94i
REC RATE :
PROXY
PRESS [EXIT] BUTTON TO EXIT

4 After you finish making changes, select “OK.”

The changes made to the metadata are saved to the clip and the metadata display reappears.
Select [EXIT] to cancel the changes and return to the previous display.

◆Note:

- To delete the latitude and longitude, enter a blank space for the altitude. They cannot be deleted separately.
- The metadata of an incomplete clip with the ! indicator cannot be changed. Insert the P2 card(s) containing the remainder of the clip.
- The MEMO item cannot be changed if a memo of 100 characters or more has been added.

5 Press the [EXIT] button to end the process.

Changing Thumbnails

A thumbnail can be changed to the image at a position with a text memo added.

1 Add a text memo to the video you want to change.
(→ “Adding text memos” page 38)

2 Change the thumbnail display to the text memo display.

Select “TEXT MEMO CLIPS” in the “REPOSITION” (→ page 82) menu item.

3 Use the cursor buttons to move to the thumbnail to be changed and press the [SET] button.

The cursor moves to the bottom.

4 Use the left or right cursor button to move to the thumbnail you want to change.

5 Press the [MENU] button.

6 Use the cursor buttons to align the cursor with the “EXCH. THUMBNAIL” (→ page 83) menu item and press the [SET] button.

7 Align the cursor with “YES” in the confirmation message and press the [SET] button.

The menu closes and the thumbnail is changed.

◆Note:

- You can view the change in the thumbnail position (number of frames from the beginning) in the THUMBNAIL item of the clip information display. The thumbnail of a normal first frame is indicated as 0.
- Even if a thumbnail is changed, playback from the thumbnail screen will be from the beginning of the clip.
- When a text memo clip with different settings for the “SYSTEM MODE” (→ page 105) menu item is displayed, [!] may be displayed instead of the thumbnail for the text memo position displayed at the bottom.

Adding Metadata to Clips During Recording

A metadata upload file containing the shooter name, reporter name, shooting location, text memo, and other information can be saved to an SD memory card, and then recorded as clip metadata by loading it in advance prior to recording.

Use P2 Viewer Plus
to create a metadata upload file

↓

Save the file to an SD memory card

↓

Load the metadata upload file to the unit

↓

When video is recorded, the metadata
will be added to the resulting clip

Preparing a metadata upload file

Use P2 Viewer Plus to a create metadata upload file on a PC. P2 Viewer Plus is application software for using a personal computer to process clips recorded on a P2 card that can be download free of charge from the Panasonic website. For the URL, refer to "Website URL" (→ page 8).
Install P2 Viewer Plus on a PC and then create a metadata upload file and write it to an SD memory card.

◆**Note:**

- Use the latest version of the P2 Viewer Plus.
- For details on how to create a metadata upload file, refer to the help function in P2 Viewer Plus.
- Write the metadata upload file to an SD memory card formatted with the unit.
  (→ "Formatting P2 Cards and SD Memory Cards" page 45)

Settings for adding metadata

■ Metadata recording setting

Set whether to add loaded metadata when recording clips in the "REC META DATA" - "RECORD" (→ page 90) menu item.

■ Selecting the recording method of USER CLIP NAME

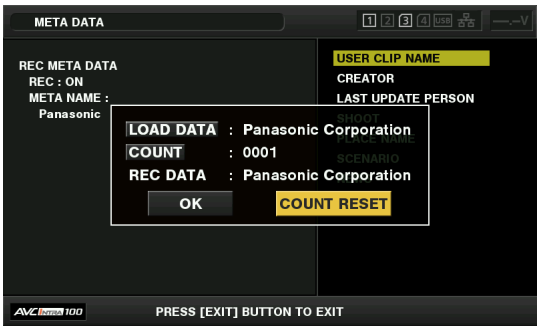
Set the type of data to record as "USER CLIP NAME" in the "USER CLIP NAME" (→ page 90) menu item.
The data recorded varies depending on the combination of the "USER CLIP NAME" and "RECORD" menu items.

Recording method	USER CLIP NAME to be recorded	
Clip metadata "RECORD" = "ON"	TYPE1:	Loaded metadata settings
	TYPE2:	Loaded metadata settings + counter value
Clip metadata "RECORD" = "OFF"	TYPE1:	Same as GLOBAL CLIP ID
	TYPE2:	Same as CLIP NAME

■ Counter value

The counter value is indicated as a four-digit number. When the recording method of USER CLIP NAME is set to "TYPE2" and a metadata file is loaded, the counter value is incremented by 1 each time recording is performed to generate a new clip.
You can use the following procedure to reset the counter value.

1. Use the cursor buttons to align the cursor with "USER CLIP NAME" in the metadata screen of the "REC META DATA" - "PROPERTY" (→ page 90) menu item and press the [SET] button.
2. Use the cursor buttons to align the cursor with "COUNT RESET" and press the [SET] button.
   The counter value is reset to 1.



3. Press the [EXIT] button to end the process.

Metadata upload files

■ Loading a file

Use the following procedure to load the metadata settings from an SD memory card.

1. Insert the SD memory card containing the metadata upload file.
2. Display the thumbnail screen.
3. Press the [MENU] button.
4. Use the cursor buttons to align the cursor with the “REC META DATA” - “LOAD” (→ page 90) menu item and press the [SET] button.
   The metadata name of the metadata upload file on the SD memory card appears.

◆Note:

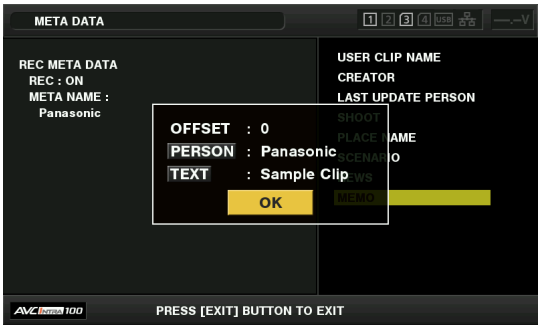
- When the metadata name is displayed, press the right cursor button to display the file name.
  Press the left cursor button to return to the metadata name.

5. Use the cursor buttons to align the cursor with the file to load and press the [SET] button.
6. Align the cursor with “YES” in the confirmation message and press the [SET] button.
   The metadata is loaded.
7. Press the [MENU] button to end the process.

■ Checking and editing loaded metadata

The settings of the metadata loaded from an SD memory card can be checked.

1. Press the [MENU] button and select the “REC META DATA” - “PROPERTY” (→ page 90) menu item.
2. Use the cursor buttons to move the cursor and press the [SET] button.
   Each setting of the loaded metadata can be checked.



3. While viewing the metadata settings, use the cursor buttons to move the cursor to the item for which you want to change the setting and press the [SET] button.
   When the software keyboard appears, change the setting.

◆Note:

<Metadata types that can be set>

- Use the cursor button to align the cursor with the metadata item you want to check and press the [SET] button to display the information.

USER CLIP NAME:	Loaded user clip name, counter value, and recorded data
CREATOR:	Creator
LAST UPDATE PERSON:	Person who last updated the data
SHOOT:	Person who shot the clip
PLACE NAME:	Shooting location
SCENARIO:	Program name, scene number, and take number
NEWS:	Reporter, purpose of data collection, and object of data collection
MEMO:	Name of the person who entered the memo and the text information

- After checking the information, press the [EXIT] or [SET] button to close the screen displaying the information.
- When you finish changing the settings, select “OK.”

4. Press the [EXIT] button to close the metadata confirmation screen.

■ Deleting the metadata settings

The metadata saved in the unit can be deleted to initialize the settings with the “REC META DATA” - “INITIALIZE” (→ page 90) menu item.

Formatting P2 Cards and SD Memory Cards

1 Use the cursor buttons to align the cursor with “SLOT n” (“n” is the number of the P2 card slot with the P2 card you want to format inserted) in the “FORMAT” (→ page 83) menu item and press the [SET] button.

◆**Note:**

- Selecting “SD CARD” will format the SD memory card inserted in the SD memory card slot.
- If a CPS password is set for the microP2 memory card, a confirmation message for selecting “CPS(ENCRYPT)” (encrypted format) or “NORMAL” (normal format) appears when you select the slot. If you select “CPS(ENCRYPT),” the microP2 memory card will be encrypted.

2 Select “YES” in the confirmation message and press the [SET] button.

Formatting begins.

◆**Note:**

- To cancel formatting, select “NO” and press the [SET] button.
- Be sure to check the data before formatting since data erased by formatting cannot be recovered.

3 When the confirmation message appears, select “OK” (press the [SET] button).

◆**Note:**

To format a P2 card or SD memory card in another P2 card slot, repeat steps 1 to 3.

Checking the Card Status

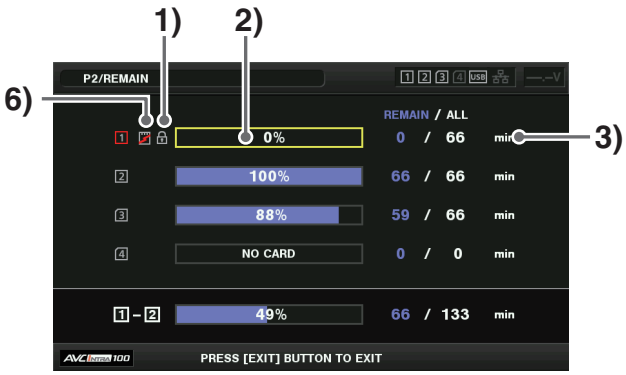
The P2 card slot status, P2 card usage status, and other card information can be displayed and checked on the screen.

1 Use the cursor buttons to align the cursor with the “CARD STATUS” (→ page 82) menu item and press the [SET] button.

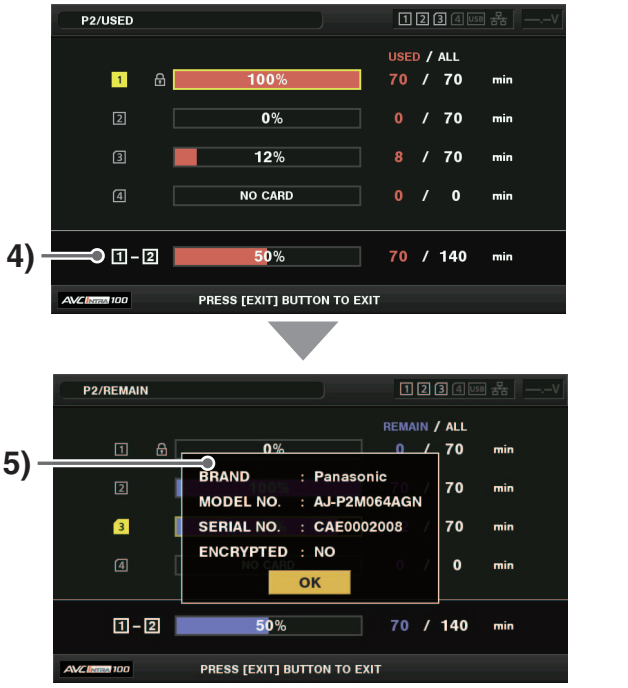
The P2 card status appears.

◆**Note:**

You can switch the display between the remaining free space and used space in the “REMAIN SETUP” (→ page 82) menu item.



OR



1)Write protected mark

The [🔒] mark is displayed when a P2 card is write protected.

2)P2 card status

When the remaining free space is displayed, the remaining free space on the P2 card is indicated in the form of a bar meter and as a percentage value.
When the used space is displayed, the used space on the P2 card is indicated in the form of a bar meter and as a percentage value.
The following may also be displayed depending on card status.

FORMAT ERROR!:	An unformatted P2 card is inserted.
NOT SUPPORTED!:	A card that is not supported by the unit is inserted.
NO CARD!:	No P2 card is inserted.
AUTH NG CARD:	A microP2 memory card for which the CPS password cannot be authenticated is inserted.

3)Remaining free space (or used space) and total space on the P2 card

Indicates the remaining free space (or used space) and total space on the P2 card in minutes. Fractions of a minute are rounded off on the display so the sum total of the remaining free space (or used space) on each P2 card may not tally with the figure for the total space.

4)Total slot free space (or used space)

Indicates the value obtained by calculating the total of the remaining free space (or used space) on both P2 card slots.

◆**Note:**

Free space of write protected P2 cards is not included in the free space total.

5)P2 card details display

Align the cursor with a slot in the P2 card status display and press the [SET] button to display the model number and other detailed information on the card.
Press the [SET] button again or the [EXIT] button to close the detailed information screen.

◆**Note:**

If the number of clips recorded on a P2 card exceeds the limit, "OVER MAX NUMBER CLIPS" is displayed in the P2 card details display to indicate that the limit has been exceeded.

6)Card warning mark

This warning is displayed for a P2 card in the following cases.
You can check the warning details in the P2 card details display.

- [RUN DOWN CARD]
  The maximum number of overwrites for a P2 card has been exceeded.
- [DIR ENTRY NG]
  The P2 card directory structure is not supported.

Manual and Automatic CPS Authentication

Manual CPS authentication

microP2 memory cards in an encrypted format are authenticated automatically by the unit, and can be used if authentication is successful.
If a microP2 memory card in a different encrypted format is inserted in a card slot of a device authenticated with a different CPS password, an authentication error occurs. To temporarily use the card for which the authentication error occurred, follow the procedure described in steps 1 and 2 to manually enter the authentication code (CPS password) for the microP2 memory card. If the code matches, you will be able to use that card.

1 Check the authentication failure.

Open the thumbnail screen and select the "CARD STATUS" (→ page 82) menu item to check the information.
For a card with an authentication error, the slot number frame at the top right of the screen turns red and the remaining free space bar displays "AUTH NG CARD." Use the up or down cursor button to select that card.

2 Perform manual authentication.

Select the "AUTHENTICATE" (→ page 83) menu item in the card status screen to display the software keyboard for entering the CPS password.
Enter the password and select "OK."
When CPS password input is successful, the "AUTHENTICATED SUCCESSFULLY!" message appears.
When CPS password input fails, a warning message (→ page 116) appears.

◆**Note:**

- Manual authentication is only temporary. The manually set CPS password becomes invalid when the corresponding microP2 memory card is removed or the power is turned off.
- Up to 16 characters can be entered for the CPS password.
- For the conditions under which manual authentication is valid and other information, refer to the website. (→ "Website URL" page 8)

Automatic CPS authentication

A CPS password can be read from a SD memory card or input into the unit.

■ Setting the password

Loading the CPS password from an SD memory card

1 Download the latest version of P2 Viewer Plus to the personal computer and then install it.

2 Generate a CPS password with P2 Viewer Plus and then write it to an SD memory card.

◆**Note:**

- The generated CPS password file is encrypted, but take appropriate measures to avoid security risks. For example, format the SD memory card when the file is no longer needed.
- The generated CPS password is generated as a file with the ".p2p" extension in private/meigroup/pavcn/sbg/p2sd/ of the SD memory card. Do not delete this file until it has been loaded by the device.

3 Load the CPS password file.

①Turn on the power of the unit and then insert the SD memory card into the SD card slot.

②Open the thumbnail screen.

③Select the "CPS PASSWORD" - "LOAD" (→ page 82) menu.

④Select the file to use from the displayed password file list and press the [SET] button.

- When loading of the CPS password is successful, the "LOADINGPASSWORD COMPLETED!" message appears.
- When loading of the CPS password fails, a warning message appears. For details on the warning, refer to "Warning Details" (→ page 110).
- If a warning message is displayed, check the insertion status of the SD memory card, the save location of the CPS password file (file name: ∗∗∗∗∗∗.p2p) generated in step 2, etc.

Setting the CPS password with the software keyboard

1 Select the "CPS PASSWORD" - "SET" (→ page 82) menu item.

The software keyboard for entering the CPS password appears.

2 Enter the CPS password with the software keyboard

When you enter the password in "PASSWORD" and in "RETRY PASSWORD" for verification and then select "OK," the CPS password is set.

- When CPS password input is successful, the "SETTING PASSWORD COMPLETED!" message appears.
- When CPS password input fails, a warning message appears. For details on the warning, refer to "Warning Details" (→ page 110).

◆**Note:**

- Up to 16 characters can be set for the password.
- Do not forget the password you entered because it cannot be displayed on a device.

■ Deleting the password

When you no longer need to use the CPS function, delete the CPS password.
To delete the CPS password, select the "CPS PASSWORD" - "DELETE" (→ page 82) menu item.
"DELETING PASSWORD COMPLETED!" appears and the CPS password is deleted.

◆**Note:**

When the setting becomes unset after deletion of the CPS password, automatic authentication of microP2 memory cards and the encrypted format function are disabled.

Connecting an External Device via the USB HOST Port

Supported storage devices

The following storage devices can be used.

- Panasonic portable hard disk unit P2 store (AJ-PCS060G)
- Hard disk drives or solid state drives connected via USB 2.0/3.0.

◆**Note:**

Only Ver.2.∗∗ and later of P2 Store are supported. Ver.1.∗∗ cannot be connected. Upgrade from Ver1.∗∗ to Ver.2.∗∗ before use.

Storage device types and available functions

The available functions depend on the type of storage device used. The storage device type is displayed below “PARTITION:” on the left side of the EXPLORE screen.
(→ “Viewing storage device information (EXPLORE screen)” page 51)

◆Note:

- The USB 3.0 connector supports USB bus power (5 V, 0.9 A), but startup may not be possible depending on the storage device. Should this happen, provide the storage device with a separate power supply.
- Storage devices over 2 TB (2018 GB) are not supported.

Storage device types and available functions

Storage device type	Features	Available functions									
		Thumbnail Display	P2 card basis				Clip basis		Play-back check*3	Clip image display	Format
			P2/microP2 (≤32 GB) → Storage	microP2 (>32 GB) → Storage	Storage → P2/ microP2 (≤32 GB)	Storage → microP2 (>32 GB)	P2/ microP2 → Storage	Storage → P2/ microP2			
TYPE S	A special format for high-speed writing/ loading data on a P2 card basis.	✔	✔		✔		✔*1	✔	✔	✔	✔
P2 STORE	The P2 store (AJ-PCS060G) hard disk. Cannot be used for writing data.	✔			✔			✔	✔	✔	
FAT	A storage device whose primary partition is formatted either in FAT16 or FAT32. The root partition or “CONTENTS” directory in any folder *2 is used.	✔	✔				✔	✔	✔	✔	✔
OTHER	Storage device other than the above • A storage device with a file system other than FAT16 and FAT32, such as NTFS.										✔*4

*1 Adding clips to a partition will prevent writing back data on a card basis to that partition.

*2 There can be up to three levels of folders and the maximum number of folders is 100. The folders appear in order from the top level. Long file names and two-byte character file names are not supported.

Example:

/CONTENTS	Can be displayed
/SAMPLE/CONTENTS	Can be displayed
/SAMPLE/20090101/CONTENTS	Can be displayed
/SAMPLE/20090101/1200/CONTENTS	Cannot be displayed → This is the fourth level and will therefore not be displayed.

*3 Audio and video dropouts may occur during playback from a storage device depending on its performance and operating conditions. Perfect playback cannot be guaranteed.

*4 2 TB or larger storage devices cannot be formatted.

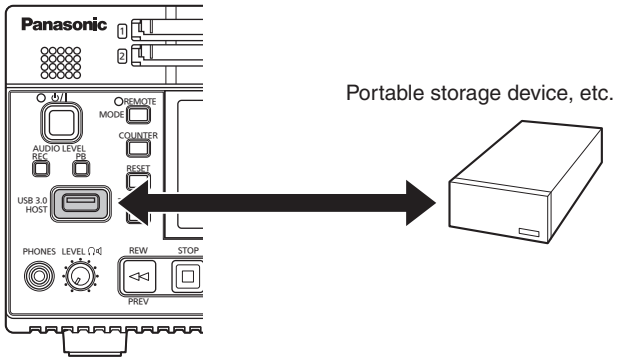
◆Note:

Use storage devices under the following conditions.

- Use storage devices within their operating specifications (temperature, etc.).
- Do not install storage devices in locations that are unstable or exposed to vibration.
- Some storage devices and cables may not operate normally.
- Use a storage device with sufficient space for copying.
- Do not connect a storage device together with other storage devices via a hub or other device, even if the other storage devices are not powered on. Do not connect other devices together with a storage device via a hub or other device.
- During formatting and copying, do not disconnect cables, do not remove a P2 card that is involved in any of these activities, and do not turn off this unit or the storage device. The unit and the storage device will need to be rebooted.
- A storage device is a high-precision instrument whose read and write functions may fail if used in an unsuitable environment. Please note that Panasonic accepts no liability whatsoever for data loss or other damage, either direct or indirect, arising from a storage device failing or for some other reason.
- When the contents of a storage device used for copying from this unit are replaced using a computer or other device, subsequent operation with the unit and the data of the storage device cannot be guaranteed.
- Panasonic recommends repairing bad clips on P2 cards before copying them to a storage device.
- SATA (serial ATA) or PATA (parallel ATA) interface storage devices connected via a USB adapter cable may not be recognized.
- Do not connect or disconnect cables during recording or playback with the unit. Recording or playback may not be performed normally.
- Depending on the storage device, the performance of the initial playback confirmation after a connection is established may be reduced.

Connecting a storage device

1 Connect the storage device to the USB 3.0 port on the front panel.



- When connecting a USB 3.0 compatible storage device, use a cable that conforms to the USB 3.0 standard. With a USB 2.0 cable, the transfer rate of USB 2.0 will not be able to be exceeded.

2 When the storage device is recognized and becomes available for use, the USB (gray) icon at the top right of the thumbnail screen changes to USB (white).

Formatting a storage device

Format a storage device in the supported TYPE S or FAT format.

◆Note:

Note that all data on the storage device will be deleted when it is formatted.

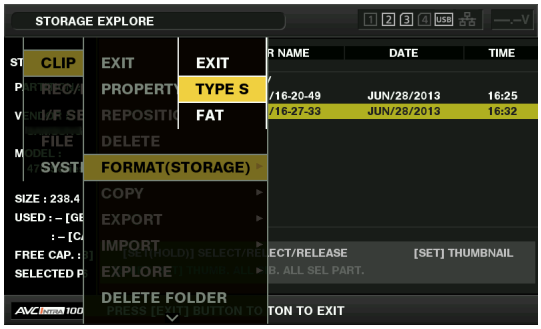
1 Connect the USB storage device.

When the storage device is recognized, the status indicator (→ page 34) for the storage device turns white (or red).

2 Use the cursor buttons to align the cursor with the “EXPLORE” (→ page 83) menu item, press the [SET] button, select “STORAGE,” and press the [SET] button.

The EXPLORE screen opens.

3 Press the [MENU] button, use the cursor buttons to align the cursor with the “FORMAT (STORAGE)” (→ page 83) menu item, press the [SET] button, select the format (TYPE S or FAT), and then press the [SET] button.



4 Align the cursor with “YES” in the confirmation message and press the [SET] button.

5 When the confirmation message appears again, align the cursor with “YES” and press the [SET] button.

The storage device is formatted.

◆Note:

Be sure to check the data before formatting since data erased by formatting cannot be recovered.

Exporting data to a storage device by card

Data can be exported to a storage device by card (writing data from a P2 card to the storage device). The copy result and maximum number of copies differ depending on the format of the storage device.

Storage device type	Copy result	Maximum number of copies*2
TYPE S	A partition is created for each card, and all the data on a card is copied to the corresponding partition. The product number and serial number of the copied P2 card can be checked in the EXPLORE screen of the unit.	23
FAT	A folder*1 is created for each card, and all the data on a card is copied to the corresponding folder. The folder name can be checked on the EXPLORE screen of the unit.	100

*1 Folders are created in two levels. A date (year/month/date) folder is created and then a time (hour/minute/second) folder is created inside the date folder.
Example: When 12:34:56 on March 30, 2014
/14-03-30/12-34-56

*2 Data that exceeds the size of the storage device cannot be copied.

1 Connect a storage device.

A storage device that is not in the TYPE S or FAT format will be formatted in the TYPE S or FAT format.
(→ “Formatting a storage device” page 49)

2 Insert a P2 card.

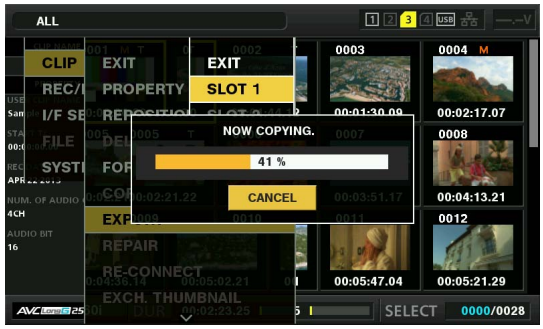
3 Use the cursor buttons to align the cursor with the “EXPORT” (→ page 83) menu item and press the [SET] button.

4 Align the cursor with the P2 card slot number that is the copy source and press the [SET] button.

When the storage device is in the TYPE S format, selecting “ALL SLOT” will result in a batch export of all inserted cards.

5 Align the cursor with “YES” in the confirmation message and press the [SET] button.

Exporting begins. A progress bar is displayed during exporting.
When exporting is completed, “COPY COMPLETED!” appears.



◆Note:

- When the TYPE S format is used for exporting, the P2 card data and the copied data on the storage device can be verified (compared) automatically after exporting. In the factory default settings, verification is enabled for exporting. When verification is set not to be performed after exporting, the exported data is not verified so less time is required to complete the export operation.
  To disable verification, set the “VERIFY” (→ page 85) menu item to “OFF.”
  With the FAT format, verification is not performed regardless of this setting.
- To stop exporting, press the [SET] button, align the cursor with “YES” in the “CANCEL” confirmation message, and press the [SET] button.
- Stopping the process during verification has no effect because the copying of the P2 card has already finished.
- A microP2 memory card over 32 GB cannot be exported and imported. Copy the clips.

Copying clips to a storage device

You can copy just the selected clips rather than the entire card to a storage device.

1 Display the thumbnail screen, use the cursor buttons to align the cursor with a clip, and press the [SET] button.

You can also select multiple clips.

2 Use the cursor buttons to align the cursor with the “COPY” (→ page 83) - “STORAGE” menu item and press the [SET] button.

3 Select the copy destination in the storage device folder or partition list that appears and press the [SET] button.

◆**Note:**

- The following folders are displayed for a storage device in the FAT format.
  - Root folder
  - Up to three levels of folders containing the CONTENTS folder
- Copying is not possible on a TYPE S storage device without even one partition. Format the storage device in the FAT format or create a partition by exporting data, and then perform the copy operation.

4 Align the cursor with “YES” in the confirmation message and press the [SET] button.

Copying begins. A progress bar is displayed during copying. When copying is completed, the “COPY COMPLETED!” message appears.

◆**Note:**

- To stop copying, use the cursor buttons to align the cursor with “CANCEL,” press the [SET] button, align the cursor with “YES” in the “CANCEL” confirmation message, and press the [SET] button. Partially copied clips at the copy destination are deleted.
- When a clip is copied to a TYPE S storage device, it will not be possible to import data by card to that partition. In that case, “UNKNOWN” will be displayed for the card model number.

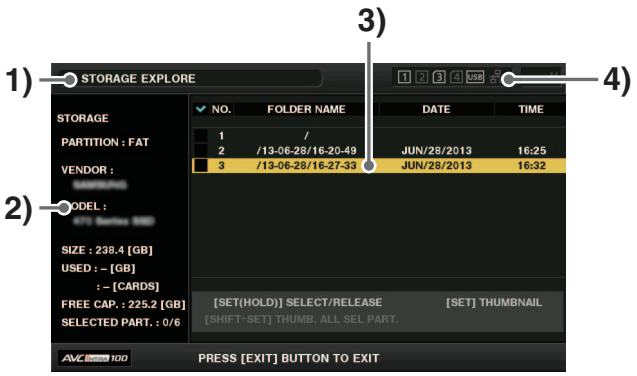
5 Press the [SET] button to complete the process.

Viewing storage device information (EXPLORE screen)

You can display storage device information, select the display of a storage device partition or folder thumbnails, and select a partition or folder as a target for operation (in the EXPLORE screen).

1 Use the cursor buttons to align the cursor with the “EXPLORE” (→ page 83) - “STORAGE” menu item and press the [SET] button.

The EXPLORE screen appears.



1) Display status

Indicates that the screen is the EXPLORE screen for a storage device.

2) Device information

The following information is displayed.

Storage device that allows reading and writing by card (TYPE S or P2 STORE).	PARTITION:	TYPE S / P2 STORE
	VENDOR:	Vendor name
	MODEL:	Model name
	SIZE:	Total size (Unit: GB)
	USED:	Space used (Unit: GB) Used P2 card area (Unit: cards) Up to 23 cards
	FREE CAP.:	Remaining free space (Unit: GB)
	SELECTED PART.:	Number of selected partitions
Storage device other than the above (FAT or OTHER)	PARTITION:	FAT/OTHER
	VENDOR:	Vendor name
	MODEL:	Model name
	SIZE:	Total size (Unit: GB)
	FREE CAP.:	Remaining free space (Unit: GB)
	SELECTED PART.:	Number of selected folders

3) Partition information
(for a TYPE S storage device or P2 Store disk)

☑:	A check mark is displayed for a partition selected as an operation target.
NO.:	Partition number (1 -)
MODEL:	P2 card model name
PARTITION NAME:	Name assigned to partition “Setting a partition name” (→ page 52)
DATE:	Partition recording date
TIME:	Partition recording time
SERIAL:	P2 card serial number

Folder information
(for a FAT storage device)

☑:	A check mark is displayed for a folder selected as an operation target.
NO.:	Folder number (1 -)
FOLDER NAME:	Folder name (does not include the CONTENTS folder)
DATE:	Folder creation date
TIME:	Folder creation time

◆Note:

- Use the left or right cursor button to toggle between the partition names and serial name for a TYPE S storage device.
- The partition information for an invalid partition on a P2 Store is indicated in gray.
- The remaining free space of the corresponding partition can be checked in the “FREE CAP. OF PARTITION” (→ page 82) menu item.

4) Storage device indicator
Indicates whether a storage device is connected and the device type.

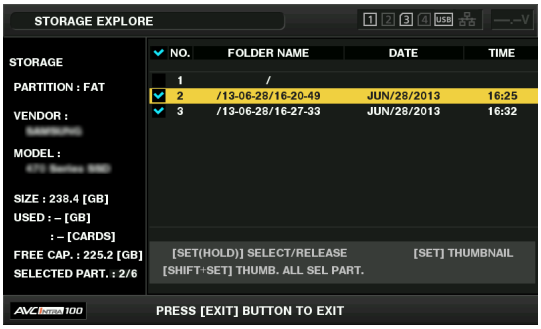
■ Operations in the EXPLORE screen

Selecting a partition or folder as a target for operation

Selecting a partition or folder as a target allows you to display all the clips in the selected partition or folder as thumbnails. (→ “Displaying the Thumbnail Screen.” page 32)

Up to six partitions or folders can be selected as targets for operation.

1. Align the cursor with a partition or folder in the EXPLORE screen.
2. Hold down the [SET] button (for at least 1 second).
The partition or folder is selected and ☐ becomes ☑.



The selected operation targets remain available until the storage device is disconnected or the power is turned off. To cancel an operation target selection, select it and hold down the [SET] button again (for at least 1 second). Pressing the [CANCEL] button cancels all selections.

- When an attempt is made to select a 7th item, the item is not set and a warning appears.

◆Note:

- A clip recording that spans a partition whose MODEL has become “UNKNOWN”*1 and another partition on a TYPE S storage device will not become one normal clip.
  *1 When a clip is copied to a TYPE S storage device, MODEL of the copy destination partition changes to “UNKNOWN.”
- Partition names can be set for a TYPE S storage device. A set partition name is displayed in “PARTITION NAME” in the EXPLORE screen.

Setting a partition name

In the case of a TYPE S storage device, a name (up to 20 characters) can be assigned to a partition.

◆Note:

A set partition name is displayed in “PARTITION NAME” in the EXPLORE screen.

1. Align the cursor with the partition you want to set in the EXPLORE screen for the storage device.
You can also press the [SET] button to display the thumbnail list and then enter a partition name.
2. Press the [MENU] button.
3. Use the cursor buttons to align the cursor with the “CHANGE PARTITION NAME” (→ page 84) menu item and press the [SET] button.
The software keyboard appears.
4. Enter the name to set for the partition and select “OK.”
The partition name is set.

Deleting the last partition

The last partition of a storage device can be deleted in the "DELETE LAST PARTITION" (→ page 84) menu item.

◆Note:

- Move the cursor to the last partition beforehand.
- Deletion of the last partition is only possible for a TYPE S storage device. Only the last partition can be deleted. A partition before the last partition cannot be deleted.
- Carefully check the partition before executing this because a deleted partition cannot be recovered.

■ Viewing thumbnails of clips on a storage device and viewing video on the monitor

Displaying thumbnails

The thumbnail screen can also be displayed to manage clips stored on a storage device in the same way as for a P2 card inserted in the unit.

1. Display the EXPLORE screen.

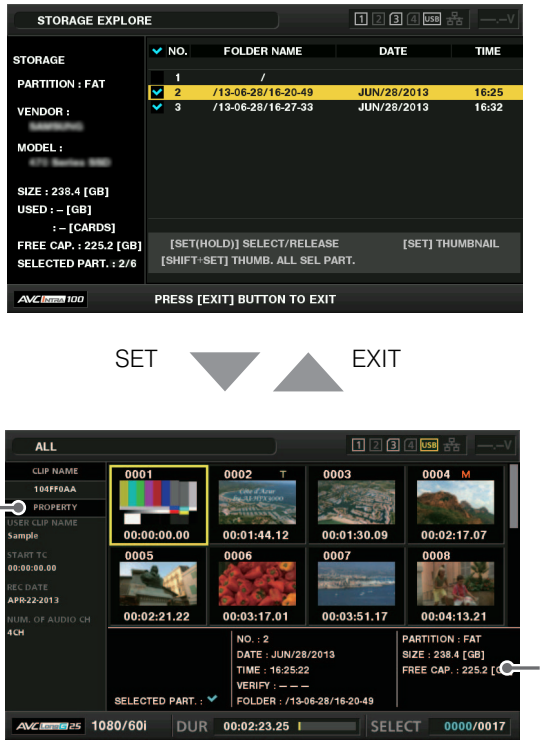
   A list of partitions or folders appears.

2. Use the cursor buttons to align the cursor with the partition or folder for which you want to display the thumbnail screen and press the [SET] button.

   The clips in that partition or folder are displayed as thumbnails. Press the [EXIT] button to return to the EXPLORE screen.

◆Note:

When operation targets are selected, pressing the [SHIFT] + [SET] buttons displays the thumbnails for all the partitions selected as operation targets.



1) Clip information

   Displays the clip properties.

2) Storage device information

When TYPE S

SERIAL:	P2 card serial number	
MODEL:	P2 card model name	
SELECTED PART.:	Displays a check mark (☑) when the partition is selected as an operation target.	
SELECTED PART. No.:	This is displayed only when multiple partitions are selected, and shows a list of the numbers of the selected partitions.	
NO.:	Partition number (1 -)	
DATE:	Partition recording date	
TIME:	Partition recording time	
VERIFY:	Verification setting for recording and verification result	
	ON: FINISHED	Verification was successful
	ON: FAILED	Verification failed • When P2 Store, displays "--."
	OFF:	Verification was not performed
NAME:	User assigned partition name	
SIZE:	Total size of storage device	
USED:	Used space of storage device	
FREE CAP.:	Remaining free space of storage device	

When FAT

SELECTED PART.:	Displays a check mark (☑) when the partition is selected as an operation target.
SELECTED PART. No.:	This is displayed only when multiple folders are selected, and shows a list of the numbers of the selected folders.
NO.:	Folder number (1 -)
DATE:	Folder creation date*1
TIME:	Folder creation time*1
FOLDER:	Folder name
SIZE:	Total size of storage device
FREE CAP.:	Remaining free space of storage device

*1 The creation date and time are not displayed for root.

◆Note:

- You can change the thumbnail screen display if necessary. The operation is the same as when displaying thumbnails for a P2 card (→ "Changing the Thumbnail Display" page 35).
- There is a limit of 1000 clips and clips that exceed this limit will not be displayed.

Viewing clip information

Various metadata information can be viewed for the clips stored on a storage device. The information can be displayed in the same way as for P2 card clip properties.

1. Move the cursor to the target clip in the thumbnail screen of the storage device.
2. Press the [MENU] button.
3. Use the cursor buttons to align the cursor with the "CLIP PROPERTY" (→ page 82) menu item and press the [SET] button.
   (→ "Viewing and Editing the Clip Information" page 41)
   Editing is not possible.

Deleting clips

You can delete the clips on a storage device that are no longer needed.

1. Select a clip to delete in the thumbnail screen of the storage device.
2. Press the [MENU] button.
3. Use the cursor buttons to align the cursor with the "DELETE" (→ page 82) menu item and press the [SET] button.
4. Align the cursor with "YES" in the confirmation message and press the [SET] button.

◆**Note:**

Clips indicated by NG (bad clip indicator) and ? (unknown clip indicator) may not be able to be deleted.

Checking the video and audio of a clip

1. Display the thumbnail screen of the storage device.
2. Use the cursor buttons to align the cursor with the clip you want to view.
3. Press the [PLAY] ▷ button.
   Playback begins from the clip at the cursor position. When the clip at the cursor position ends, subsequent clips are played back in order. When the last clip has been played, the thumbnail screen of the storage device is redisplayed.

◆**Note:**

- To play back a clip, you do not need to select it (so that the thumbnail appears inside a blue frame).
- You can change the thumbnail display settings to play back only selected clips or play back only clips with text memos added.
- Pressing the [SEARCH] button instead of the [PLAY] ▷ button displays the first frame of the clip as a still image.
- Pressing the [REW] ◁◁ button instead of the [PLAY] ▷ button rewinds playback, while pressing the [FF] ▷▷ button fast forwards playback.
- A clip whose clip number is red cannot be played back.
- Pressing the [STOP] □ button during clip playback stops playback and redisplays the thumbnail screen.
- When playback is stopped, the cursor moves to the clip played prior to stopping.
- When clips in different compression formats are played back, the video and audio between clips may be distorted.
- Text memos, metadata, and other data cannot be added or edited.
- When "ONE CLIP PLAY" is assigned to a [USER] button, pressing that [USER] button allows you to play back only the clip at the cursor position.
- Audio and video may stop or dropouts may occur during playback depending on the storage device. Use a high-speed storage device to prevent dropouts. A warning appears when video dropouts occur. Press the [STOP] □ button or other button to close the warning message.

Writing back (importing) data from a storage device to a P2 card

■ Importing Data from a TYPE S storage device or P2 Store by partition

You can import data (on a P2 card basis) to a P2 card with the same model number as the source card (write back data from a storage device to a P2 card) by partition.

1. Insert the import destination P2 card.
   Be sure to insert a formatted P2 card.
2. Connect a storage device.
3. Select “STORAGE” in the “EXPLORE” (→ page 83) menu item to display the EXPLORE screen.
4. Display the thumbnails of the partition to be imported in the EXPLORE screen.
5. Select the “IMPORT” (→ page 83) menu item.
6. Align the cursor with the P2 card slot number that is the import destination and press the [SET] button.
   Select “YES” in the confirmation message to begin importing.
   When importing is completed, the “COPY COMPLETED!” message appears.

◆**Note:**

- When data is imported to a P2 card that differs from the original P2 card, some clips may become incomplete (display the incomplete indicator). Should this happen, use the reconnection function to rebuild the clips.
  (→ “Reconnecting incomplete clips” page 40)
- You can select whether to perform verification at the time of copying in the “VERIFY” (→ page 85) menu item.
- It is not possible to import data by partition to P2 cards with different model numbers. Copy the data on a clip basis.

■ Copying to a P2 card by clip

You can specify a clip on a storage device and copy it to a P2 card.

1. Display the thumbnail screen of the storage device.
2. Select a clip to copy.
3. Press the [MENU] button.
4. Align the cursor with the copy destination in the list of the “COPY” (→ page 83) menu item and press the [SET] button.
   Select “YES” in the confirmation message to begin copying.
   When copying is completed, the “COPY COMPLETED!” message appears.

Using the Unit Connected to a Network

The network connector (1000BASE-T/100BASE-TX/10BASE-T) allows you to connect the unit to a network to transfer clips to server devices on the network.

(Functions)
- The FTP client function enables the unit to send and receive clips

Network Settings

To use the network functions, set the “NETWORK SEL” (→ page 95) menu item to “LAN.” The power of the unit needs to be turned off and then back on after you change the setting of the menu item. After rebooting the unit, set the settings for the functions you will use.

◆Note:

When you set the network settings, the settings information is saved.

LAN settings

To use the unit connected to a network, you need to set the LAN settings.
Set the various settings in the “LAN PROPERTY” (→ page 95) menu item.
Setting items:

Item	Description	Setting value	Factory default setting
MAC ADDRESS	MAC address (unique ID)	Cannot be changed.	Setting value (cannot be changed)
DHCP	DHCP setting	ENABLE: Enables DHCP (automatic assignment).	DISABLE
		DISABLE: Disables DHCP (automatic assignment).	
IP ADDRESS	IP address	Enter with the numeric keypad.	192.168.0.2
SUBNET MASK	Subnet mask	Enter with the numeric keypad.	255.255.255.128
DEFAULT GATEWAY	Default gateway	Enter with the numeric keypad.	192.168.0.1
PRIMARY DNS	Primary DNS server setting	Enter with the numeric keypad.	0.0.0.0
SECONDARY DNS	Secondary DNS server setting	Enter with the numeric keypad.	0.0.0.0

◆Note:

- When “NETWORK SEL” is set to “LAN,” starting up may take longer because the unit will connect to the network when it is turned on.
- When “NETWORK SEL” is set to “OFF,” the network function will not be available. When the “NETWORK SEL” setting is changed, the change is not applied until the unit is restarted.
- When the settings are changed, it may take a while for the settings screen to close because the network service is restarted.
- The combination of the IP address, subnet mask, and default gateway must be correct.
  If the “CANNOT ACCESS GATEWAY!” warning appears when the settings screen closes, consult with your network administrator.
- When a default gateway or DNS will not be used, set the settings to “0.0.0.0.”
- DHCP and DNS may not operate properly in some network environments.

Client settings

To transfer clips with the FTP function, you need to set the connection destination and other settings in advance.
Set the settings in the “CLIENT SERVICE” (→ page 95) menu item.

CLIENT SERVICE:

Item	Description	Setting value	Factory default setting
FTP SERVER URL	Name or address of connection destination server	Enter with the full keyboard. (Up to 500 characters)	Unset
LOGIN USER / LOGIN PASSWORD	User ID and password for connecting	Enter with the full keyboard. (Up to 31 characters for the user ID and up to 15 characters for the password)	Unset
SSH	Set this to use SSH for file transfers.	ENABLE: Enables SSH.	DISABLE
		DISABLE: Disables SSH.	

• The set password cannot be displayed on the unit.

Operation check tools, status indication, and initialization

You can check the network connection status of an FTP client.

■ Checking the connection (PING)

1 Display the thumbnail screen.

2 Press the [MENU] button to display the menu.

3 Use the up or down cursor button to align the cursor with the “PING” (→ page 96) menu item and press the [SET] button.

4 Check the connection status for the set address.

When a connection is confirmed, “PING SUCCESSFUL!” appears.
“PING FAILED!” appears if a connection cannot be established within approximately 30 seconds. Use the log described in the next section to determine the cause of the failure.

■ Viewing the connection log (LOG)

1 Press the [MENU] button to display the menu.

2 Use the up or down cursor button to align the cursor with the “LOG DISPLAY” (→ page 96) menu item and press the [SET] button.

Check the information in the log.

3 After you finish checking, press the [EXIT] button to return to the menu.

◆Note:

• Some operations may not generate any information in the log.
• The password is indicated as “∗” in the log.

■ Status display

1 Press the [MENU] button to display the menu.

2 Use the cursor buttons to align the cursor with the “STATUS DISPLAY” (→ page 96) menu item and press the [SET] button.

The connection status appears.

3 After you finish checking, press the [EXIT] button to return to the menu.

◆Note:

• The status information is not updated in real-time. To view the most recent information, perform the steps above again.
• When “DHCP” is set to “ENABLE,” the values may differ from those of ordinary LAN settings.
• When “DHCP” is enabled, the status information is not displayed correctly while the address information is being obtained.
• The default gateway is not displayed as status information if it is not set correctly.
• If only SECONDARY DNS is set and PRIMARY DNS is not set in the LAN settings, the DNS is indicated as “DNS1.”

■ Initializing the network settings (INITIALIZE)

1 Press the [MENU] button to display the menu.

2 Use the cursor buttons to align the cursor with the “NETWORK TOOLS” - “INITIALIZE” (→ page 96) and press the [SET] button.

The menu reappears when initialization is completed.

Using FTP Client Functions

To use the FTP client functions, you need to set the LAN settings and FTP client settings in advance.

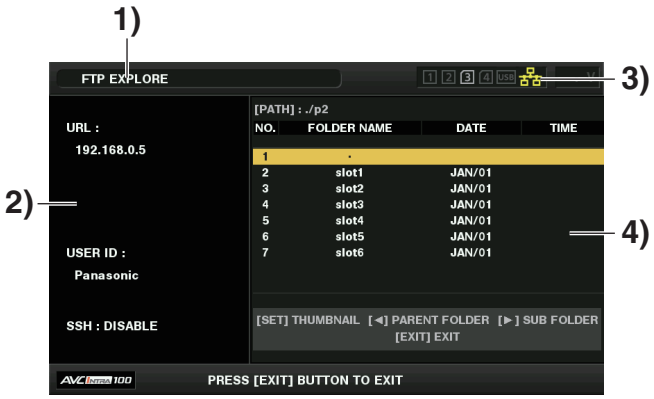
FTP server folder list (FTP EXPLORE screen)

Locate the FTP server folder tree to display a list of subfolders in folders and folder information. You can also display a list of the thumbnails in any CONTENTS folder (folder containing the P2 card clips).

1 Display the thumbnail screen.

2 Press the [MENU] button.

3 Use the cursor buttons to align the cursor with the "EXPLORE" (→ page 83) - "LAN" menu item and press the [SET] button.



1)Display status

Indicates that the screen is the FTP EXPLORE screen.

2)FTP server information

The following information is displayed.

URL:	URL of connected FTP server
USER ID:	User ID of logged in user
SSH:	Indicates whether SSH is set to ENABLE or DISABLE.

3)Media status

Indicates the P2 card insertion status, hard disk connection status, type, and LAN cable connection status. The LAN indicator displays the following status.

Gray:	Gray indicates that the LAN setting is OFF.
White:	White indicates that the LAN setting is ON.
Yellow:	Yellow indicates that a LAN cable is connected and that there is a link.
Red:	Red indicates an error with the unit. Consult your dealer because the unit may have malfunctioned.

◆Note:

There is a delay of a few seconds between the updating of the LAN indicator and the actual status.

4)Folder information

PATH:	Path of current folder on FTP server
NO.:	Folder number (1 -)
FOLDER NAME:	Folder name
DATE:	Date of last update
TIME:	Time of last update

◆Note:

- The folder list displays only folders, and does not display ordinary files or link files.
- "." indicates the current folder. No date and time information is displayed.
- The date and time information is either the local time or world standard time, but depends on the information from the FTP server.
  Sometimes only the year or time is displayed.
- Whether text is case sensitive or not depends on the FTP server.
- Folder names using multi-byte characters are not displayed correctly.
- Up to 100 folders can be displayed in a folder.
  The 101st folder and subsequent folders cannot be accessed from the FTP EXPLORE screen.
  However, if a folder name is directly added to [FTP CLIENT URL:] in the FTP client settings, the contents of that folder can be accessed even if it is the 101st folder or a subsequent folder.
- Connectivity and folder display may differ from that of a PC connected to an FTP server.
- Depending on the FTP server and the connection environment, error messages may not be displayed correctly.
- To stop an operation when connected, press the [SET] button.
- If an error occurs, perform the operation again.
- An error may be generated when a network operation is performed right after connecting a LAN cable or stopping the previous operation.
- Check the connection with PING when performing an operation several times results in a connection error. If PING fails, check that the LAN settings are correct, the LAN cable is connected properly, and any hubs or routers in the path are operating normally. If PING is successful, check whether the server function services of the FTP server are running, whether there is a firewall in the communication path, and whether a user ID and password that permits access to the FTP server have been set. Note that it may be possible to connect using FTP even when PING fails.
- If a connection cannot be established even after performing the above checks, consult with the system administrator of your network environment.
- Some GUI operations may not be possible for a while after an FTP server operation has been cancelled.

Operations in the FTP EXPLORE screen

Right cursor button:	Indicates the contents of the subfolder at the cursor position.
Left cursor button:	Indicates the contents of the folder at the level above the current folder.
Up and down cursor buttons:	Moves the cursor.
[TOP] and [BOTTOM] buttons:	Moves the cursor to the top or bottom level folder in the list.

◆Note:

- Server operating specifications and access privileges may prevent the display of folder contents, the correct folder path, etc.
- The unit remembers the previous cursor position in a folder. However, an error will reset it to the top level. Also, if thumbnails are displayed, the unit only remembers the cursor position in the folder list displayed immediately before.

Viewing the Thumbnails of Clips on an FTP Server (FTP Thumbnail Screen)

Thumbnails on an FTP server can also be displayed in the same way as for a P2 card inserted in the unit.

FTP thumbnail display

1 Display the FTP EXPLORE screen.

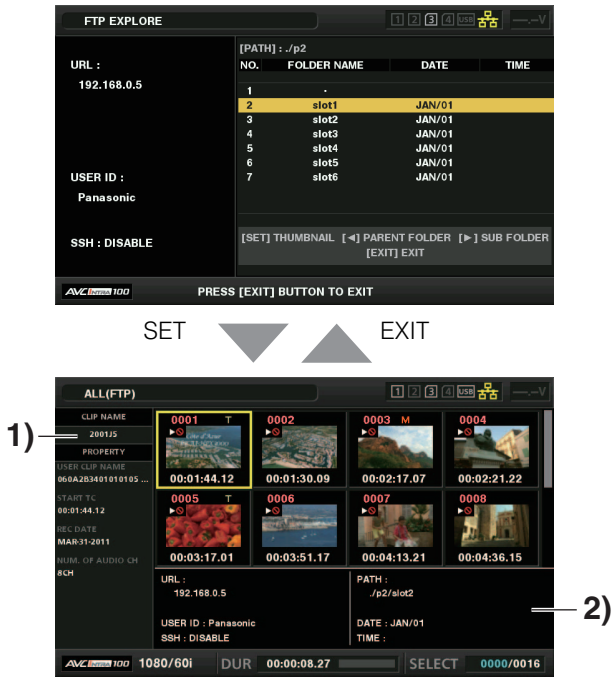
A list of folders appears.

2 Use the cursor buttons to align the cursor with the folder in the CONTENTS folder whose thumbnails you want to display and press the [SET] button.

The clips in that folder are displayed as thumbnails.

◆Note:

- Pressing the [SET] button in the CONTENTS folder will not display thumbnails. Be sure to press the [SET] button in folders above the CONTENTS folder or in the current folder indicated by [.].
- When there is both an uppercase “CONTENTS” folder and lowercase “contents” folder, the contents of the uppercase folder are displayed.
- When there is a mixture of folders with uppercase names and folders with lowercase names below the CONTENTS folder, correct access may not be possible or error messages may be inappropriately displayed.



1) Clip information

Indicates the properties of the clip at the cursor position. (→ “Thumbnail Screen” page 32)

2) FTP server/folder information

URL:	URL of connected FTP server
USER ID:	User ID of logged in user
SSH:	Indicates whether SSH is set to ENABLE or DISABLE
PATH:	Path of the currently displayed thumbnail folder on the FTP server
DATE:	Date of last update
TIME:	Time of last update

◆**Note:**

- Press the [EXIT] button to return to the EXPLORE screen.
- There is a limit of 1000 clips and clips that exceed this limit will not be displayed.
- The date and time information is either the local time or world standard time, but depends on the information from the FTP server.
- If "." is selected and thumbnails are displayed, the folder date and time information will not be displayed.

Deleting Clips on the FTP Server

The clips on an FTP server that are no longer needed can be deleted in the same way as for a P2 card.
(→ "Deleting Clips" page 40)

◆**Note:**

The FTP server may disconnect the connection if you leave the FTP thumbnails displayed without performing an operation, and it will not be possible to delete clips after that. Should this happen, return to the FTP EXPLORE screen, display the FTP thumbnails again, and then delete the clips.

Viewing FTP Server Clip Information

Various metadata information can be viewed for the clips on an FTP server.
The information and the procedure to display the information are the same as for P2 card clip properties.

1 Move the cursor to the target clip in the FTP thumbnail screen.

The detailed information of a clip can be displayed and checked on a screen.

2 Press the [MENU] button.

3 Use the cursor buttons to align the cursor with the "CLIP PROPERTY" (→ page 82) menu item and press the [SET] button.

◆**Note:**

- Metadata can be viewed but not edited.
- The FTP server may disconnect the connection if you leave the FTP thumbnails and FTP properties displayed without performing an operation, and it will not be possible to perform operations such as displaying clips after that. Should this happen, return to the FTP EXPLORE screen, display the FTP thumbnails again, and then perform the operation.

Transferring Clips

Clips on a P2 card or hard disk can be transferred to an FTP server, and written back from the FTP server to the P2 card or hard disk.

Transferring to an FTP Server (Copy)

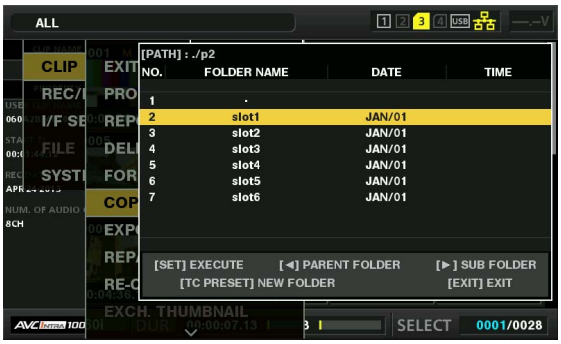
1 Display the thumbnail screen and select the clip to transfer.

2 Press the [MENU] button.

3 Use the cursor buttons to align the cursor with "FTP" in the "CLIP" - "COPY" (→ page 83) menu item and press the [SET] button.

4 The server screen appears.

The folders on the set server are displayed. Use the cursor buttons to select the transfer destination folder.



◆**Note:**

- Folder names using multi-byte characters are not displayed correctly.
- Press the [TC PRESET] button to add a new folder to the current folder list. (This operation is not related to the cursor position.)
  Numeric characters indicating the date and time are automatically entered for the name of the new folder but you can set a different name with the full keyboard.
  Note that some characters are not allowed on some FTP servers.
  A folder with the same name as an existing folder cannot be created.

5 Align the cursor with “YES” and press the [SET] button.

Copying begins.
(→ When importing on a clip basis, also refer to “Copying Clips” page 39.)
When copying is completed, “COPY COMPLETED!” appears.

◆**Note:**

- Depending on the number of clips on the server and network conditions, it may take some time to display thumbnails or copy them.
- To stop copying, press the [SET] button, align the cursor with “YES” in the CANCEL confirmation message, and press the [SET] button. If the network is not disconnected, the partially copied clips at the copy destination are deleted. If the network is disconnected, incomplete clips may remain on the FTP server.
- After copying starts, disconnection errors will no longer be detected. Use the procedure above to stop a copy operation that has stalled.
- Confirm the amount of free space on the FTP server from your FTP server administrator in advance because it cannot be checked automatically before copying starts.
- Whether an error occurs when the remaining free space on the FTP server reaches 0 depends on the FTP server. If an error is not generated, use the procedure above to stop the operation.
- Clips cannot be copied to an FTP server folder that contains more than 1000 clips.
- To use SSH, the FTP server must be SSH compliant.
- Setting SSH to “ENABLE” will reduce the transfer speed.
- Before you can check the result of a transfer on a PC or other device, you may need to refresh the display on the PC or other device.

Writing back from an FTP server (copy)

Selected clips can be written back from an FTP server on the network to a P2 card or hard disk.

1 Open the FTP thumbnail screen.

2 Select the clip to copy from the displayed thumbnails on the server.

3 Press the [MENU] button.

4 Use the cursor buttons to align the cursor with the “CLIP” - “COPY” (→ page 83) menu item and press the [SET] button.

5 Select the transfer destination (P2 slot or hard disk) from the menu list and start writing back the data.

◆**Note:**

- Depending on the number of clips on the server and network conditions, it may take some time to display thumbnails or copy them.
- To stop copying, press the [SET] button, align the cursor with “YES” in the CANCEL confirmation message, and press the [SET] button. Partially copied clips at the copy destination are deleted.
- After copying starts, disconnection errors will no longer be detected. Use the procedure above to stop a copy operation that has stalled.
- Clips cannot be copied to a P2 card or hard disk folder that contains more than 1000 clips.
- To use SSH, the FTP server must be SSH compliant.
- Setting SSH to “ENABLE” will reduce the transfer speed.
- After an error occurs during an operation such as copying, the connection to the FTP server may be disconnected, resulting in the operation no longer being able to be continued. Should this happen, return to the FTP EXPLORE screen, display the FTP thumbnail screen again, and then restart the copying or other operation.

When copying is completed, “COPY COMPLETED!” appears.

Transferring SD Memory Card Data

The data in an SD memory card can be transferred to an FTP server, and then written back from the FTP server to the SD memory card.

Transferring to an FTP server (export)

1 Display the thumbnail screen.

2 Press the [MENU] button.

3 Use the cursor buttons to align the cursor with the "CLIP" - "EXPORT" (→ page 83) menu item and press the [SET] button.

◆**Note:**
- The "SD CARD" menu item can be selected only when a card is inserted in the SD memory card slot.
- For a card in an SD card slot, only the whole memory card can be exported. It is not possible to export selected clips like with a P2 card.

4 The server screen appears.

The folders on the set server are displayed. Use the cursor buttons to select the transfer destination folder.

◆**Note:**
- Folder names using multi-byte characters are not displayed correctly.
- Press the [TC PRESET] button to add a new folder to the current folder list. (This operation is not related to the cursor position.)
  Numeric characters indicating the date and time are automatically entered for the name of the new folder but you can set a different name with the full keyboard.
  Note that some characters are not allowed on some FTP servers. A folder with the same name as an existing folder cannot be created.

5 Press the [SET] button to start exporting.

◆**Note:**
- Exporting may take a long time depending on factors such as the number of files, file sizes, and network conditions.
- To stop exporting, press the [SET] button, align the cursor with "YES" in the "CANCEL" confirmation message, and press the [SET] button. If the network is not disconnected, the partially exported files on the FTP server are deleted. If the network is disconnected, incomplete files may remain on the FTP server.
- After exporting starts, disconnection errors will no longer be detected. Use the procedure above to stop an export operation that has stalled.
- Confirm the amount of free space on the FTP server from your FTP server administrator in advance because it cannot be checked automatically before exporting starts.
- Whether an error is generated when the remaining capacity of the FTP server reaches 0 depends on the FTP server. If an error is not generated, use the procedure above to stop the operation.
- When an existing folder is selected and that folder contains files with the same path names as files in the SD memory card, the files will be overwritten without any warning message being displayed. However, if the path names are the same but the types differ (folder and file), an error is generated.
- To prevent inadvertent overwriting, create new folders to export data whenever possible.
- To use SSH, the FTP server must be SSH compliant.
- Setting SSH to ENABLE will reduce the transfer speed.

When exporting is completed, "COPY COMPLETED!" appears.

Writing back from an FTP server (import)

A folder selected from an FTP server on the network can be written back to an SD memory card.

1 Display the FTP EXPLORE screen.

2 The folder screen of the FTP server appears.

The folders on the set server are displayed. Use the cursor buttons to select the transfer source folder.

3 Press the [MENU] button.

4 Use the cursor buttons to align the cursor with the "IMPORT" (→ page 83) menu item and press the "SET" button.

Press "OK" in the SD IMPORT confirmation dialog box that appears to start writing back the data to the SD memory card.

◆**Note:**

- To stop importing, press the [SET] button, align the cursor with "YES" in the "CANCEL" confirmation message, and press the [SET] button. Partially imported files in the SD memory card are deleted, but successfully imported files remain.
- After importing starts, disconnection errors will no longer be detected.
  Use the above procedure to stop an import operation that has stalled.
- Writing back may take a long time depending on factors such as the number of files, file sizes, and network conditions.
- Any files with the same path names on the SD memory card will be overwritten without any warning message being displayed. However, if the path names are the same but the types differ (folder and file), an error is generated.
- To prevent inadvertent overwriting, format the SD memory card before importing whenever possible.
- To use SSH, the FTP server must be SSH compliant.
- Setting SSH to "ENABLE" will reduce the transfer speed.

When importing is completed, "COPY COMPLETED!" appears.

USB Device Mode

A USB 2.0 connection with a PC or other device allows you to use the P2 cards inserted in the P2 card slots of this unit as mass storage devices. Note that a separate USB driver, which can be downloaded free of charge from the Panasonic website, needs be installed on the PC.(→ “Website URL” page 8)

You can use P2 Viewer Plus, which can be downloaded free of charge from the Panasonic website, to manipulate clips stored on P2 cards.
For the URL(→ “Website URL” page 8)

◆**Note:**

For details on connecting, refer to the operating instructions supplied with your PC and software.

1 Press the [MODE] button when the unit is in the idle state.

2 Align the cursor (∗) with “USB DEVICE” in the selection screen and press the [SET] button.

“USB DEVICE” flashes on the LCD monitor and the unit switches modes. After the mode is switched, “USB DEVICE DISCONNECT” appears on the LCD monitor.
This message is replaced with the “USB DEVICE CONNECT” message when the connection with the PC is completed.

3 Perform operations in USB device mode.

◆**Note:**

Please refer to the operating instructions supplied with your PC and software.

4 Press the [MODE] button to return to regular mode.

◆**Note:**

Recording, playback, and most other operations are not available in USB device mode.

AVCHD Playback Mode

Using an Optional AVCHD Board

■ What is AVCHD?

AVCHD is a standard for the recording and playback of high-definition video. Video is compressed in MPEG-4 AVC/H.264 and audio is recorded in Dolby Digital or linear PCM.

◆Note:

- The unit can play back recorded clips that conform to the AVCHD standard or AVCHD Ver.2 standard (AVCHD Progressive).
- SD memory cards can only be used with the system frequency set at the time of formatting.

[Video compatibility]

- AVCHD video can only be used with AVCHD compatible devices. For details, refer to the operating instructions for your device.

SD/SDHC/SDXC Memory Cards

The following SD cards can be used for AVCHD playback with this AVCHD option.

Card type	Size
SD memory cards	32 MB to 2 GB
SDHC memory cards	4 GB to 32 GB
SDXC memory cards	Over 32 GB to 64 GB

◆Note:

- Please note that a miniSD, miniSDHC, microSD, microSDHC, or microSDXC memory card will not operate normally when in AVCHD playback mode, even if the dedicated adapter is attached.
- For the latest information not available in the Operating Instructions, visit the support page on the Panasonic website. (→ "Website URL" page 8)
- The unit supports SD memory cards formatted in the FAT12 and FAT16 formats, SDHC memory cards formatted in the FAT32 format, and SDXC memory cards formatted in the exFAT format that are compliant with the SD standard.
- SDHC memory cards of 4 GB or more without the SDHC logo and SDXC memory cards of 48 GB or more without the SDXC logo are not compliant with the SD standard.
- MultiMediaCards cannot be used.

SD memory card slots and access lamps

When an SD memory card is inserted in the SD memory card slot of the unit, the recorded clips can be displayed as thumbnails and played back.

◆Note:

Before playing back the recorded clips, be sure to close the cover of the SD memory card slot.

■ Access lamps

Lit orange:	Reading possible.
Flashing orange (fast):	Recognizing or determining whether defective
Flashing orange (slow):	Being accessed
Off:	Reading not possible, no card is inserted, unformatted, unsupported card inserted, or write-protected

SD memory card protection

To prevent the accidental deletion of data recorded on the SD memory card, set the write-protect switch on the SD-memory card to "LOCK".

Removing SD memory cards

1 Check that the SD memory card access lamp is not flashing.

2 Press the center of the SD memory card and then remove it after it bounces back by pulling it straight out.

◆Note:

Be sure to remove an SD memory card when the access lamp is not flashing.

Removing an SD memory card when the access lamp is flashing may damage the SD memory card or card slot.

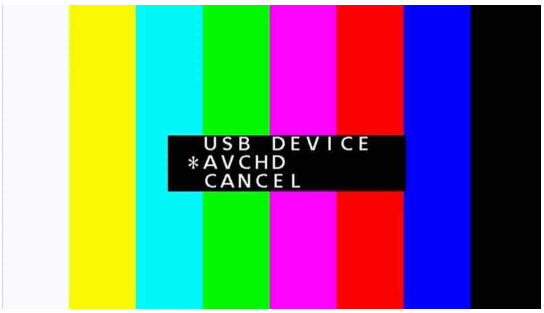
Operating the AVCHD Thumbnail Screen

Switching to AVCHD playback mode

Use the following procedure to switch to AVCHD playback mode.

1 Press the [MODE] button.

The mode selection menu appears.

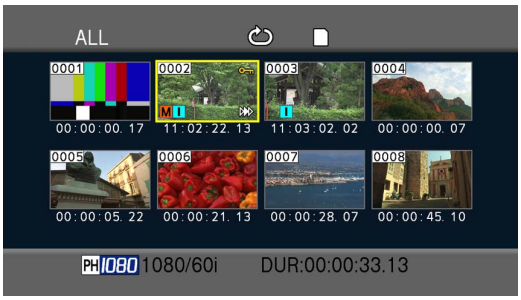


◆Note:

In AVCHD playback mode, it is not possible to log in to this unit from an external device via FTP.

2 Select “AVCHD” from the menu.

A thumbnail of each clip on the SD memory card is displayed on the LCD screen. (If there are a large number of clips, it may take time to display them all.)



The thumbnail screen allows you to do the following.

- Playing back clips
- Protecting and unprotecting clips

Basic thumbnail screen operations

■ Selecting a thumbnail

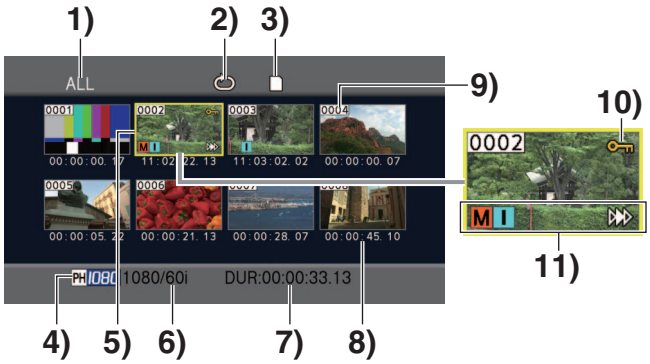
Use the cursor buttons to select a thumbnail.
(The yellow frame moves.)

■ Playing back clips

Select a thumbnail and press the [PLAY] ▷ button.
(For details on playback, refer to “Playing Back AVCHD Clips” (→ page 70).)

■ Displaying the menu

Press the [MENU] button when thumbnails are displayed.



1) Thumbnail display status (→ page 67)

Displays the type of clips for which thumbnails are displayed.

2) Repeat playback indicator (→ page 69)

Displayed during repeat playback.

3) Card status display (→ page 68)

Displays the SD memory card status.

4) Record mode indicator

Indicates the recording mode of the clip at the cursor position.

5) Cursor (yellow frame)

Displayed for the selected thumbnail.

6) Recording format display

Indicates the recording format of the clip at the cursor position.

7) Duration display

Indicates the duration of the clip at the cursor position.

8) Time display (→ page 67)

Displays the time code at the start of clip recording, user bit at the start of clip recording, time of shooting, date of shooting, or date and time of shooting, depending on the setting.

9) Clip number

Indicates the recording order. (Up to 1,000 clips are displayed.) Numbers are indicated in red for clips that cannot be played such as clips of a different recording format. To play back clips indicated in red, set the “PLAY SETUP” – “PB FORMAT” setting to match the recording format.
(→ “Setting the playback format (PB FORMAT)” page 69)

10) Clip protection indicator

Indicates that a clip is protected.

11) Various indicators

M : Shot mark
Indicates the presence of a shot mark. However, the unit cannot record shot marks.

▷▶▷: Resume playback indicator
Indicates a clip target for resume playback.

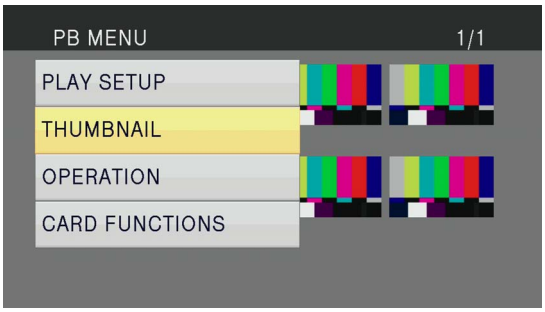
I : Index
Indicates an index has been recorded. However, the unit cannot record indexes.

Selecting the thumbnail display method (THUMBNAIL)

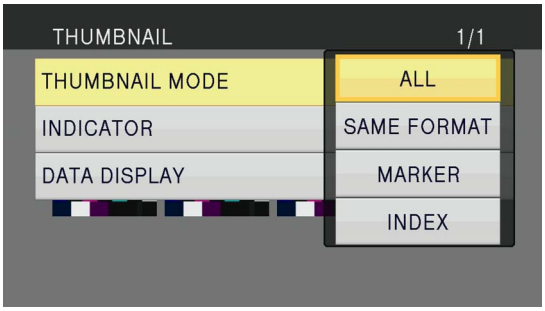
You can display thumbnails for the desired clips.
More detailed settings of the thumbnail display method are also possible.

1 Press the [MENU] button.

2 Select “THUMBNAIL” and press the [SET] button.



3 Use the up or down cursor button to select an item and press the [SET] button.



THUMBNAIL MODE:
Select the clips to display.

ALL:	Displays all clips.
SAME FORMAT:	Displays the clips in the same playback format.
MARKER:	Displays clips with shot marks.
INDEX:	Displays clips with indexes.

XX indicates the factory default setting.

INDICATOR:
Turn the indicators on or off.
(The factory default setting is ON.)
The clip protect indicator and resume playback indicator are displayed even when this is set to OFF.

DATA DISPLAY:
Select the information to display in the time display of a clip.

TC:	Time code
UB:	User bits
TIME:	Time of shooting
DATE:	Date of shooting
DATE TIME:	Date and time of shooting

XX indicates the factory default setting.

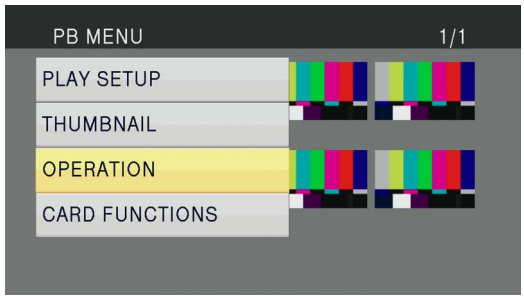
4 Press the [MENU] button to return to the thumbnail screen.

Protecting a clip (OPERATION)

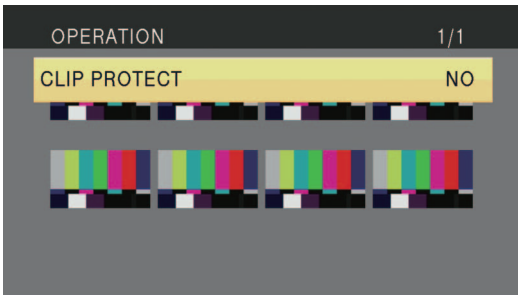
You can protect a clip.

1 Press the [MENU] button.

2 Select “OPERATION” and press the [SET] button.



3 Select “CLIP PROTECT” and press the [SET] button.



CLIP PROTECT:

YES:	Protects the selected clip. (The mark is displayed.) Select a protected clip to cancel protection. (The mark disappears.)
NO:	Displays the previous screen.

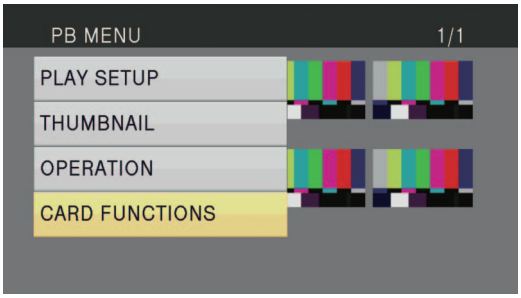
4 Press the [MENU] button to return to the thumbnail screen.

Checking the clip or card information (CARD FUNCTIONS)

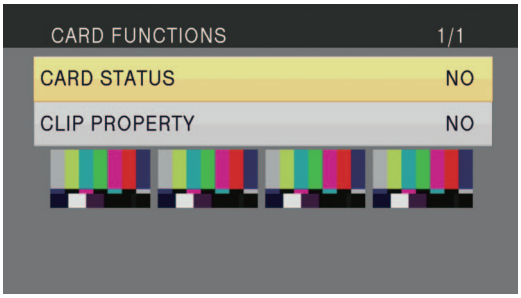
You can check information on a clip or SD memory card.

1 Press the [MENU] button.

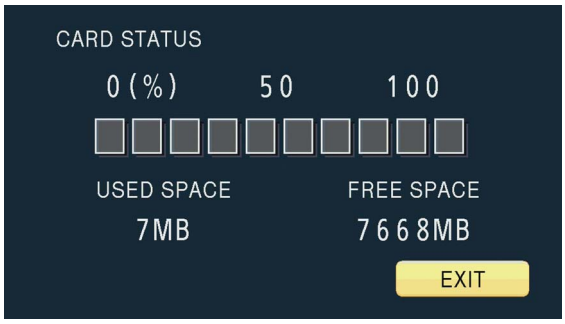
2 Select “CARD FUNCTIONS” and press the [SET] button.



3 Use the up or down cursor button to select an item and press the [SET] button.

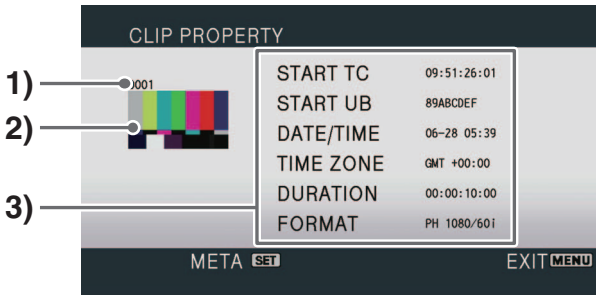


CARD STATUS:
Displays information on the SD memory card.



1)USED SPACE: Used space
2)FREE SPACE: Free space

CLIP PROPERTY:
Displays information on the selected clip.
Use the left or right cursor button to view information on the previous or next clip.



1)Clip number
2)Thumbnail
3)Clip information

Displays the various indicators added to clips and various data.

START TC:	Time code value at start of recording
START UB:	User bit value at start of recording
DATE/TIME:	Date of recording and time of start of recording
TIME ZONE:	Time zone
DURATION:	Clip length
FORMAT:	Recording format

■ Displaying clip metadata

Press the [SET] button while the clip information screen is displayed to display details such as the video and audio formats and shooter information. Use the up or down cursor to select an item.

◆Note:

- This option can only display ASCII characters. Other characters are displayed as “∗.”
- Clip metadata is nor added to clips recorded with devices other than an AVCCAM device. Even if you press the [SET] button, the clip metadata screen will not be displayed.

To close the clip metadata screen, press the left cursor button or [EXIT] button.

4 Press the [MENU] button to return to the thumbnail screen.

About clip metadata

The video data recorded on an SD memory card with an AVCCAM device may include the video and audio formats, shooter name, shooting location, and text memos.

■ Clip metadata items

GLOBAL CLIP ID:	Global clip ID (This is a unique number, and there is no clip anywhere else in the world with the same number.)
USER CLIP NAME:	Clip name set by the user*1
VIDEO & AUDIO:	• FRAME RATE (frame rate of the recorded video) • RESOLUTION (resolution) • PULL DOWN (pull down format) • AUDIO (recorded audio)
ACCESS:	• CREATOR (name of recorder) • CREATION DATE (date of recording) • LAST UPDATE DATE (last update date) • LAST UPDATE PERSON (last update person)
DEVICE:	• MANUFACTURER (manufacturer of the shooting equipment) • SERIAL NO. (serial number of the shooting equipment) • MODEL NAME (model name of the shooting equipment)
SHOOT:	• SHOOTER (shooter) • PLACE NAME (name of shooting location)
LOCATION:	• ALTITUDE (altitude of shooting location) • LONGITUDE (longitude of shooting location) • LATITUDE (latitude of shooting location) • SOURCE (information source)
SCENARIO:	• PROGRAM NAME (program name) • SCENE NO. (scene number) • TAKE NO. (take number)
NEWS 1:	• REPORTER (name of reporter) • PURPOSE (purpose of the news)
NEWS 2:	• OBJECT (object of the news)
MEMO:	• PERSON (name of person who recorded the text memo) • TEXT (text memo content)

*1 If clips are recorded without the user setting clip names, 5-digit sequence numbers are added in shooting order with the first shot clip treated as 0.

◆Note:

It is not possible to edit the metadata added to a clip.

Setting Playback

Set the playback format and playback method.

Setting the playback format (PB FORMAT)

Set the playback format.
(→ "Menu Operations" page 79)

1 Press the [MENU] button.

2 Select "PLAY SETUP" and press the [SET] button.

3 Select "PB FORMAT" and press the [SET] button.

4 Use the cursor buttons to select the playback format and press the [SET] button.

- Available formats
  - 59.94 Hz
    1080/60P, 1080/60i (30P), 1080/24P, 720/60P (30P)*1, 720/24P*1
  - 50 Hz
    1080/50P, 1080/50i (25P), 720/50P (25P)*1

*1 Support is planned to be provided via a version update.

The formats that can be selected depend on setting specified for the "LINE&FREQ" (→ page 105) menu item.

5 Press the [MENU] button to return to the thumbnail screen.

Clips with black numbers can be played back while clips with red numbers cannot be played back.

Repeat playback (REPEAT PLAY)

When the "REPEAT PLAY" (→ page 86) menu item is set to "ON," all playable clips will be played repeatedly.

Resume playback (RESUME PLAY)

Set this to resume playback from where it was last interrupted.

1 Press the [MENU] button.

2 Select “PLAY SETUP” and press the [SET] button.

3 Select “RESUME PLAY” and press the [SET] button.

4 Select “ON” and press the [SET] button.

5 Press the [MENU] button to return to the thumbnail screen.

6 Select and play a clip.

When playback is interrupted, the resume play indicator appears on the clip thumbnail and playback continues from this point the next time playback is started.
To turn off resume playback, select “OFF” in step 4.

◆Note:

Changing this setting does not change the resume playback setting for a P2 card.

Setting skip mode (SKIP MODE)

Select the operation for when the skip operation (cue up) is performed during various playback operations and when paused.

1 Press the [MENU] button.

2 Select “PLAY SETUP” and press the [SET] button.

3 Select “SKIP MODE” and press the [SET] button.

4 Select the skip mode and press the [SET] button.

CLIP:	Pressing the [NEXT] or [PREV] button when paused or during playback moves to the beginning of the current clip or the beginning of the next or previous clip.
CLIP & INDEX:	Pressing the [NEXT] or [PREV] button when paused or during playback moves to the beginning of the current clip, the beginning of the next or previous clip, or the position of the next or previous index.

5 Press the [MENU] button to return to the thumbnail screen.

◆Note:

An index is added to a certain video point of a clip being recorded or played back. You can select indexes for display/playback only if they have been added. Note, however, that an index cannot be added nor removed by this unit.

Playing Back AVCHD Clips

Playing and pausing

Clip playback can be performed only from thumbnails.

1 Use the cursor buttons to move the cursor to the clip you want to play.

2 Press the [PLAY] [▷] button.

The clip at the cursor position plays.
Press the [SEARCH] button when the thumbnails are displayed to pause playback at the beginning of the clip at the cursor position. Note, however, that stopping playback during resume playback will pause playback at the resume position.
Press the [STOP] [□] button to stop playback and return to the thumbnail.

Slow/fast forward/fast rewind

Use the multi control dial during playback or when paused to play back at predetermined speeds.
To return to normal playback, press the [PLAY] [▷] button.

◆Note:

- Audio is played back only at x1 speed.
- During reverse playback, video is played back with a gap about every 0.5 second.
- In JOG mode, smooth playback like with P2 card playback is not possible.
- The maximum speed for SHTL mode is x20.

Clip forward/rewind

1 Switch to the playback or paused state.

2 Press the [PREV] or [NEXT] button.

The set skip operation is performed.

AVCHD warning information (when the AJ-YCX500G AVCHD codec board (option) is installed)

The following shows the main warnings displayed on the LCD monitor. For details on the other displayed warnings, check the displayed messages.

Message	Description
CANNOT BE USED DUE TO INCOMPATIBLE DATA.	Cannot be used because the data standard differs.
CANNOT PLAY.	Cannot play.
CHECK CARD.	Check the card.
CONTROL DATA ERROR HAS BEEN DETECTED.	A control data error has been detected.
NO CARD	No card is inserted.
THUMBNAIL DATA ERROR IS DETECTED.	A thumbnail data error has been detected.
WRITE PROTECT	The card is write protected.

■ Error display

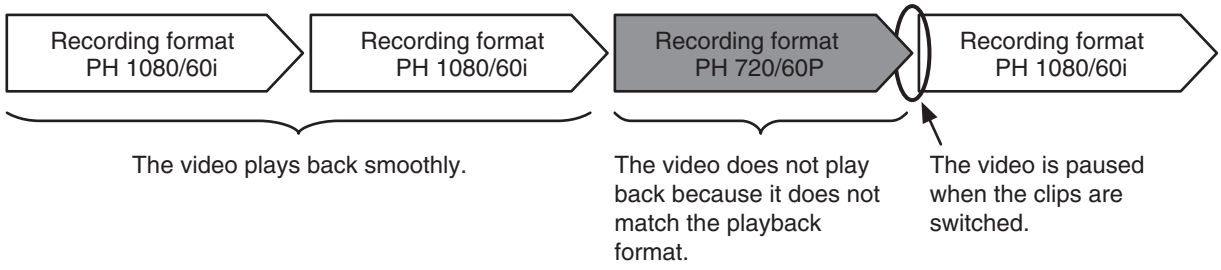
An error is displayed if a problem occurs with the unit, memory card, etc. If turning the power off and then back on does not resolve the problem, follow any displayed instructions and replace the card or contact your dealer.

Message	Description
SYSTEM ERROR TURN POWER OFF	Displayed when a system error occurs. Turn the power off and then back on.

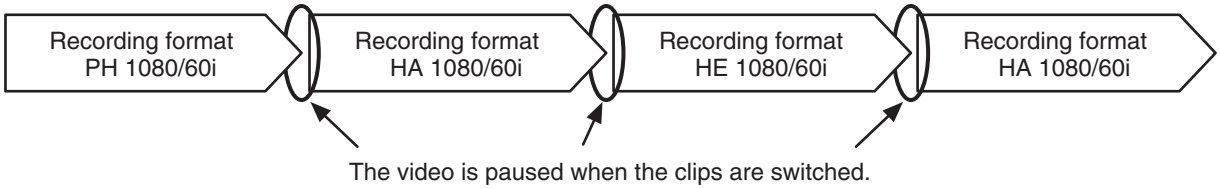
■ Switching clips during the continuous playback of multiple clips

Clips may not be able to be switched smoothly during the continuous playback of multiple clips.
In AVCHD playback mode, if multiple clips are played back continuously in the following cases, the video may be paused when clips are switched.

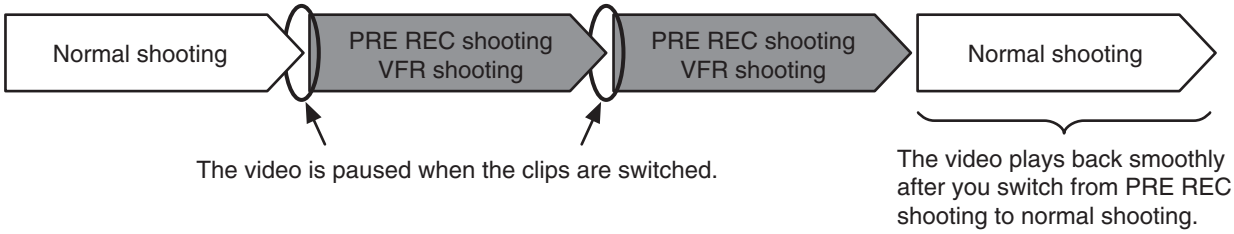
● When mixture of recording formats
Recording mode: PH mode
Playback format: 1080/60i (30P)


Recording format
PH 1080/60i
Recording format
PH 1080/60i
Recording format
PH 720/60P
Recording format
PH 1080/60i
The video plays back smoothly.
The video does not play back because it does not match the playback format.
The video is paused when the clips are switched.

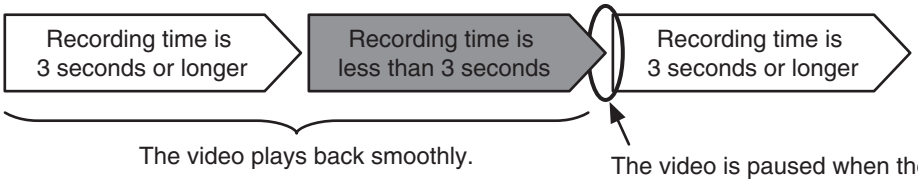
● When mixture of recording modes
Recording format: 1080/60i
Playback format: 1080/60i (30P)



● When clips shot using the PRE REC function or VFR function

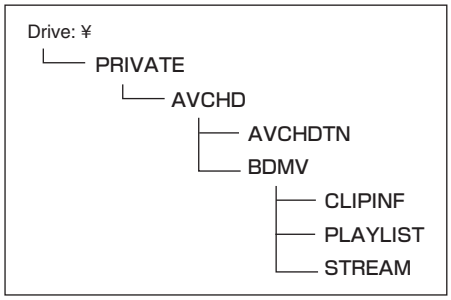

Normal shooting
PRE REC shooting
VFR shooting
PRE REC shooting
VFR shooting
Normal shooting
The video is paused when the clips are switched.
The video plays back smoothly after you switch from PRE REC shooting to normal shooting.

● When there is a clip with a recording time of less than 3 seconds


Recording time is
3 seconds or longer
Recording time is
less than 3 seconds
Recording time is
3 seconds or longer
The video plays back smoothly.
The video is paused when the clips are switched.

Handling of SD Memory Card Recording Data

Recording data in the AVCHD format is ideally suited for computer processing because it is a file format. It includes not only video and audio data but also various important information, and has the folder configuration shown on the right. If any of this data is changed or deleted, a problem may occur, such as the data being unable to be recognized as AVCHD data or the card no longer being able to be used in an AVCHD device.



■ Handling of the unit metadata

The metadata supported by the unit uses a manufacturer-unique area in the management file area for the AVCHD standard. If you delete or copy files, add or delete clip protection, or otherwise edit the metadata supported by the unit with unsupported editing software or a camcorder, the unique area for the metadata will be deleted and the PH mode information and other data will be lost. Before carrying out such editing work, confirm whether or not the unit metadata is supported.

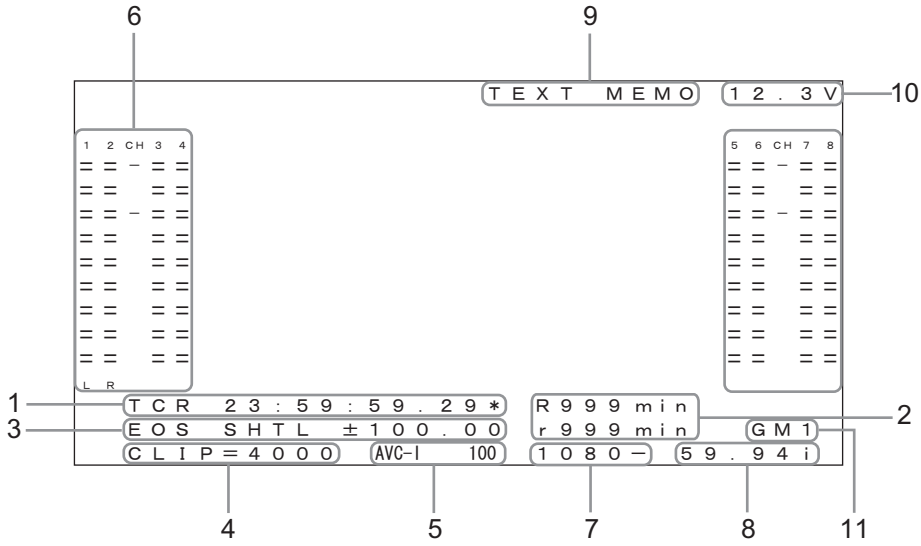
Screen Display

OSD Display

The screen display switches between “no display” → “OSD display” → “no display” each time you press the [Display] button. The formats, time codes, and modes are displayed as abbreviations on the playback and recording screens.

◆**Note:**

- Select whether to display the level meter on this display in the “OSD GRADE” (→ page 96) menu item. You can also select the display items in the “OSD TC SELECT” (→ page 96) menu item.
- Switch the output destination to display in the “OSD OUTPUT” (→ page 96) menu item.



1. Time codes and other displayed information

CTL	Relative location from the beginning
TCR	Recorded time code data
TCR.	Time code data recorded in the VAUX area
UBR	Recorded user bit data
UBR.	User bit data recorded in the VAUX area
TCG	Time code data of the time code generator
UBG	User bit data of the time code generator
TIME	Time information recorded in the subcode
DATE	Date information recorded in the subcode

◆**Note:**

- “T∗R” or “U∗R” is displayed when data could not be read from a P2 card properly.
- “∗” is displayed after the frames in the 2nd and 4th fields.
- In drop-frame mode, a period “.” is used instead of a colon “:” after seconds.

2. Remaining space on the card

The remaining space (available recording time) on the card is indicated in minutes.
R∗∗∗ indicates the amount of remaining recording spacer∗∗∗ indicates the amount of remaining proxy recording space

◆**Note:**

- 600 minutes and longer time periods are indicated in hours with an “h” appended after the number.
- When the remaining time and card length information are not defined, the indication is blank.
- Time exceeding 99 hours is indicated as 99 h.
- When recording to an SD memory card with proxy recording is not possible (for example, when the remaining space on the SD memory card is 0), “r∗∗∗” (remaining proxy recording space) flashes.

3. Operating status display

Indicates the current deck status.

4. Clip number

Indicates the clip number of the displayed thumbnail.

5. Compression format display

Indicates the compression format during recording or recording standby.
Indicates the compression format of the current clip during playback.

6. Audio level meter display

Indicates the input level during recording or recording standby and the audio level of the current clip during playback.

- You can change the channel to display in the “LEVEL METER” (→ page 95) menu item.
- When the “OSD GRADE” (→ page 96) menu item is set to “NO LEVEL METER,” the audio level meter is not displayed.

7. System format display

Indicates the system format of the setup menu during recording or recording standby.
Indicates the system format of the current clip during playback.

8. System frequency display

Indicates the system frequency.

9. TEXT MEMO display

When the “OSD TC SELECT” (→ page 96) menu item is set to other than “T&S&M,” a message is displayed when TEXT MEMO and MARKER are added.

10. DC input voltage display

Indicates the input voltage value when the “EXT DC IN SELECT” (→ page 98) menu item is set to other than “DC PWR SUPPLY.”
When other than “DC PWR SUPPLY” is set, the DC voltage value is indicated even with AC power supply input.

11. Gamma display

Indicates the setting value as GM1 (GAMMA1) to GM3 (GAMMA3) when the “GAMMA SELECT” (→ page 93) menu item is other than “OFF.”

Deck Information (DIAG) Display

This displays the deck information. Deck information includes [USER] button and warning information.

1 Press the [DIAG] button.

The [USER] button setting information appears.
After information is displayed the first time, the page displayed the last time will open from the next time.

◆**Note:**

- This information is not displayed when a menu is displayed.
- Switch the output destination to display in the “OSD OUTPUT” (→ page 96) menu item.
- Playback and other operations are not available during DIAG display.

2 Press the left or right cursor button.

The information displayed changes with each press of the button.

Information displayed

USER BUTTON:
Indicates the functions assigned to the USER buttons 1 to 6 and currently set values.

WARNING:
Warning and error information
(→ “Display of warning information” page 111)

3 Press the [DIAG] button.

The previous display is redisplayed.
You can also return to the previous display by pressing the [EXIT] or [MENU] button.

Waveform Monitor (WFM) Display

This displays a simple waveform monitor on the screen for monitoring video.
It can be displayed by setting the “WFM TYPE” (→ page 96) menu item.
WAVE: Waveform display
VECTOR: Vector display

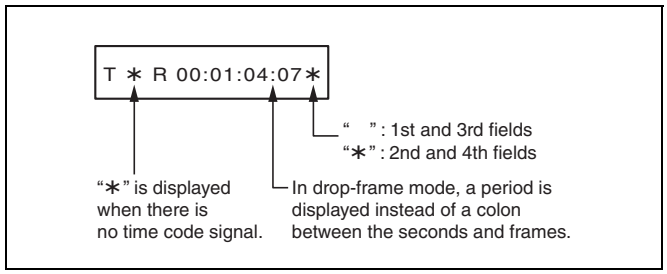
◆**Note:**

- Switch the output destination to display in the “OSD OUTPUT” (→ page 96) menu item.
- This information is not displayed when a menu or thumbnail is displayed.

Time Code, User Bits, and CTL

Time code

The time code is used when the time code signal generated by the time code generator is to be recorded. The time code values are indicated on the display and in the superimposed display.


T ∗ R 00:01:04:07∗
" " : 1st and 3rd fields
"∗" : 2nd and 4th fields
"∗" is displayed when there is no time code signal.
In drop-frame mode, a period is displayed instead of a colon between the seconds and frames.

User Bits

"User bits" are the 32-bit (8 digits) data frame of the time code signal made available to users. It allows you to record operator numbers and other values. The alphanumeric characters that can be used in the user bits are 0 to 9 and A to F.

CTL

During playback, the counter displays the playback position relative to the start position. Recording starts from the counter value 0:00:00:00. When recording stops, the counter shows the current position relative to the start position.

◆**Note:**

This is not displayed in AVCHD playback mode.

Setting the Time Code and User Bits

Internal mode

1 Switch to stop mode.

Press the [STOP] (□) button to switch to stop mode.

2 Use the [COUNTER] button to select "TC" or "UB."

3 Set the run mode of the time code generator in the "RUN MODE" (→ page 88) menu item.

REC RUN:	Advances the time code during recording.
FREE RUN:	Advances the time code regardless of operating mode.

4 Set each mode for TC and UB in the "TCG MODE" (→ page 88) and "UBG MODE" (→ page 88) menu items.

REGEN:	Maintains the continuity with the time code last recorded on a P2 card.
PRESET:	Starts recording from the value set with the [TC PRESET] button.
EXT:	Records according to external time code input.

5 Use the [TC PRESET] button to set the start values of the time code and user bits.

How to set TC/UB:

1) Press the [TC PRESET] button.

The left-most digit starts flashing.

2) Press the up or down cursor button to change the value.

3) Press the left or right cursor button to select the digit to set.

The selected digit starts flashing.
The setting ranges are as follows.

Time code:	<59.94 Hz><29.97 Hz> 00:00:00:00 - 23:59:59:29
	<50 Hz><25 Hz> 00:00:00:00 - 23:59:59:24
User bits:	00 00 00 00 - FF FF FF FF

6 Repeat steps 5 - 2) to 3) to change the other value.

Pressing the [RESET] button resets the preset value to 0.

7 When you finish setting the start values, press the [SET] button.

When the “RUN MODE” (→ page 88) menu item is set to “FREE RUN,” the time code starts advancing immediately. To cancel this setting, press the [EXIT] button or [CANCEL] button.

■ Time code when no power is supplied

When no power is supplied, the backup function works to enable the time code generator to provide long-term (about three months) operation.

◆Note:

When the setting of the “SYSTEM MODE” - “LINE&FREQ” (→ page 105) menu item is changed, the run data is cleared.

External mode

1 Press the [STOP] [□] button to switch to stop mode.

2 Use the [COUNTER] button to select “TC.”

3 Set the “TCG MODE” (→ page 88) and “UBG MODE” (→ page 88) menu items to “EXT.”

(External time code selection)

4 Select the external input time code type in the “EXT TC SEL” (→ page 89) menu item.

EXT LTC:	Records the LTC signals input to the TIME CODE IN connector (BNC) on the rear panel.
SLTC:	Records the LTC signals added to the serial signals input to the SDI IN connector.
SVITC:	Records the VITC signals added to the serial signals input to the SDI IN connector.

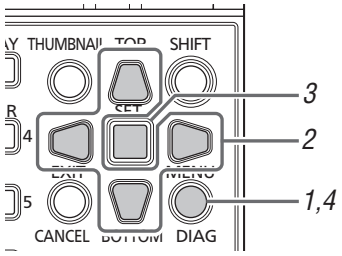
◆Note:

When “SLTC” or “SVITC” is set and “SD SDI” is selected as the input signal, the VITC of the input video signal is recorded.

Setup Menu

Menu Operations

Operate the menu as follows.



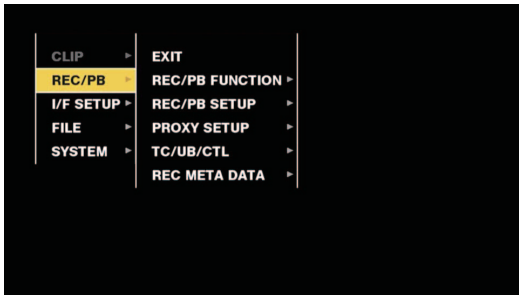
1 Press the [MENU] button to display the menu.

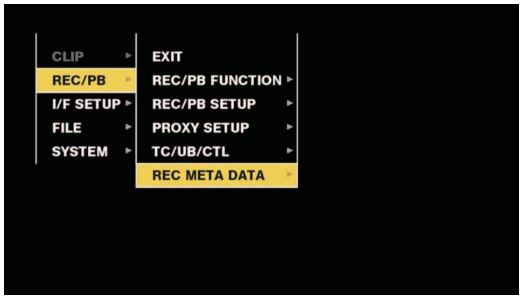
2 Use the cursor buttons to align the cursor with the corresponding menu item.

"▶" appears where a lower-level menu exists.

◆**Note:**

- Use the up and down cursor buttons to move the cursor up and down.
- Press the right cursor button or [SET] button to open a lower-level menu.
- Press the left cursor button or [EXIT] button to return to a higher-level menu.
- Menu operations are also possible with the multi control dial. Turning the multi control dial performs the same operation as the up and down cursor buttons. Pressing the multi control dial performs the same operation as the [SET] button.





3 Press the [SET] button.

◆**Note:**

- A confirmation screen is displayed for some menu items.
- Use the cursor buttons to select a process and press the [SET] button.
- A check mark is displayed before a set item.
- A screen for setting a numerical value is displayed for some menu items.
- Changing the system frequency requires rebooting the unit.

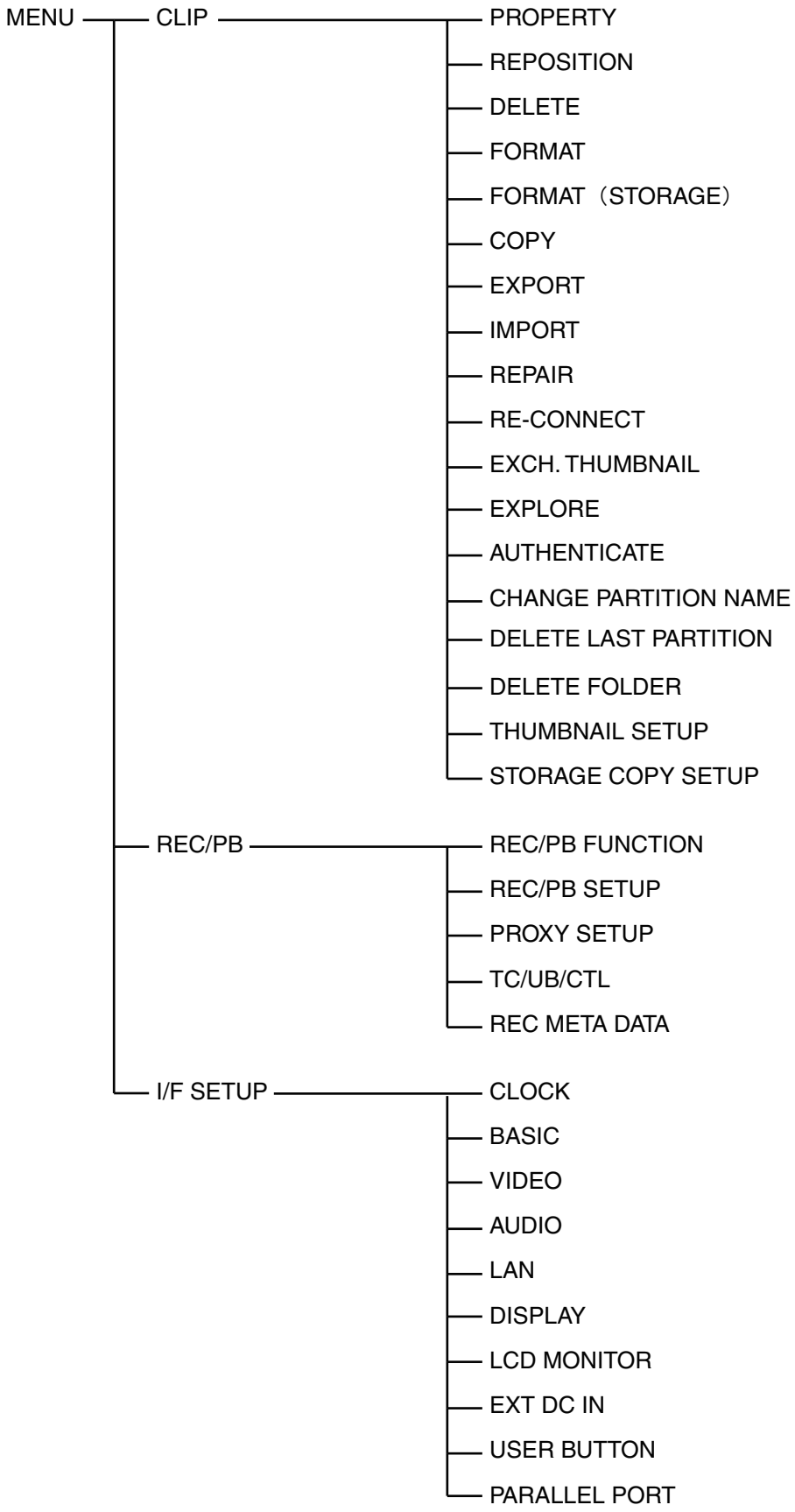
4 Press the [MENU] button to exit the menu.

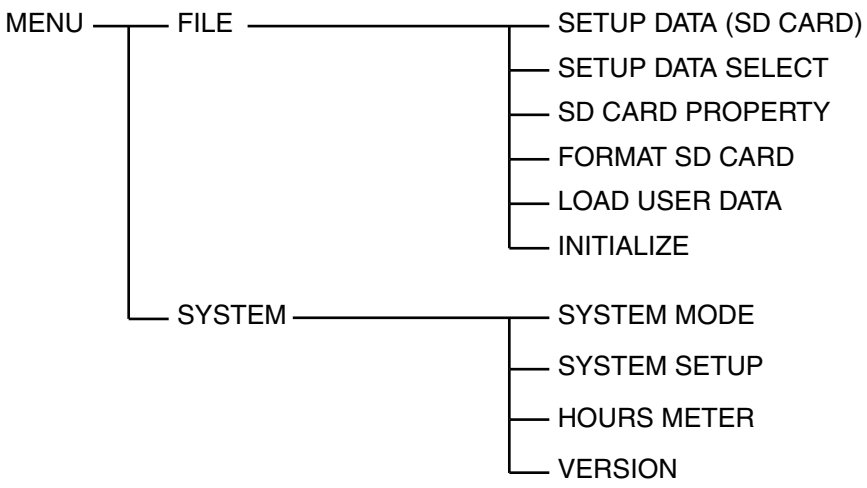
◆**Note:**

The previous screen is displayed automatically for some menu items.

For how to save and load set data or set the factory default state, refer to page 103 to 104.

Menu Structure




MENU
FILE
SETUP DATA (SD CARD)
SETUP DATA SELECT
SD CARD PROPERTY
FORMAT SD CARD
LOAD USER DATA
INITIALIZE
SYSTEM
SYSTEM MODE
SYSTEM SETUP
HOURS METER
VERSION

Menu List

CLIP

PROPERTY

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
CLIP PROPERTY	Displays detailed clip information on the screen. Individual items can also be edited. For details, refer to “Viewing and Editing the Clip Information” (→ page 41).	59.94Hz 50Hz
CARD STATUS	Displays the card status of the P2 card slots. For details, refer to “Checking the Card Status” (→ page 45).	59.94Hz 50Hz
CPS PASSWORD	Sets the CPS encryption password for microP2 memory cards. LOAD: Loads the CPS password from an SD memory card. SET: Enter a CPS password. DELETE: Deletes the password stored on the unit and disables the encryption format.	59.94Hz 50Hz
SD CARD	Displays SD memory card information.	59.94Hz 50Hz
REMAIN SETUP	Sets whether to display the remaining free space or used space when displaying P2 card information. REMAIN: Remaining free space indication USED: Used space indication	59.94Hz 50Hz
FREE CAP. OF PARTITION	Displays the free space on a partition. **Note:** This is displayed only when storage explorer.	

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
REPOSITION	Selects the clips to display in the thumbnail screen. ALL CLIP: Displays thumbnails for all clips. SAME FORMAT CLIP: Displays thumbnails only for clips recorded in the same format as the system format and with the same audio bit rate as that set in the “AUDIO SMPL RES” (→ page 105) menu item. SELECTED CLIPS: Displays thumbnails only for clips selected using the [SET] button. The thumbnails are displayed in the order of selection. MARKED CLIPS: Displays thumbnails only for clips with shot marks added. TEXT MEMO CLIPS: Displays thumbnails only for clips with text memo data. SLOT CLIPS: Displays only clips in selected slots as thumbnails.	59.94Hz 50Hz
DELETE	Deletes the selected clips. **Note:** To stop deletion, press the [SET] or [CANCEL] button to cancel the operation. Partially deleted clips cannot be restored even if you cancel deletion.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
FORMAT	After selecting the “FORMAT” menu item, format the P2 card in the P2 card slot to be specified or SD memory card in the SD memory card slot. **Note:** • When a CPS password is set, you can select “NORMAL” (normal unencrypted format) or “CPS(ENCRYPT)” (encrypted format). • Be sure to check the data before formatting since data erased by formatting cannot be recovered.	59.94Hz 50Hz
FORMAT (STORAGE)	Formats the storage device connected by USB. TYPE S: Formats in the TYPE S format. FAT: Formats in the FAT format. **Note:** This is enabled only when storage explorer or storage thumbnails.	59.94Hz 50Hz
COPY	Copies the selected clips to a P2 card in any P2 card slot or to a storage device. **Note:** • Do not turn off the power or remove/insert a card during copying. Doing so may result in a bad clip. If a bad clip is created, delete it and perform copying again. • Reconnect incomplete clips before copying.	59.94Hz 50Hz
EXPORT	Exports (writes) the data by card from P2 cards or SD memory cards to a storage device or the LAN. ALL SLOT, SLOT1 to SLOT4: Exports the data from P2 cards to a storage device. SDCARD: Exports the data from SD memory cards to the LAN.	59.94Hz 50Hz
IMPORT	Imports (writes back) clips and other data by card from a storage device or the LAN to P2 cards or SD memory cards. **Note:** • This is enabled only for TYPE S storage devices. • Data cannot be written back to a P2 card that does not have the same model number as the original P2 card. • This is displayed only when storage explorer or FTP explorer.	59.94Hz 50Hz
REPAIR	Repairs clips indicated by the bad clip indicator (NG) that were damaged by, for example, a sudden power outage during recording. **Note:** Some clips may be so badly damaged they cannot be repaired. Bad clips that are beyond repair are indicated by a red indicator (NG).	59.94Hz 50Hz
RE-CONNECT	Use this reconnection function to rejoin continuous clips that span across multiple P2 cards but are not recognized as continuous clips and are indicated by the incomplete clip indicator (!). **Note:** • Incomplete clips occur under the following conditions. - When the segments of a continuous clip that are recorded on multiple P2 cards are copied separately for each P2 card. - When the segments of a continuous clip that are recorded on multiple cards are copied separately for each card to a storage device and then written back to the P2 cards. • When some but not all the clip segments in a clip that consists of three or more clip segments are reconnected, the incomplete clip mark indicator (!) will remain displayed.	59.94Hz 50Hz
EXCH. THUMBNAIL	Changes the clip thumbnail to an image at any text memo position. This function can be executed when a text memo clip is displayed.	59.94Hz 50Hz
EXPLORE	Switches to a screen that shows various information on storage device or LAN. STORAGE: Switches to a screen that shows various information on storage device. LAN: Switches to a screen that show various information on the LAN.	59.94Hz 50Hz
AUTHENTICATE	Selecting this menu item from the card status screen displays the soft keyboard for entering the CPS password. Enter a password and select “OK” to set the CPS password on the unit. When authentication with the set CPS password is successful, the “AUTHENTICATED SUCCESSFULLY!” message appears. When authentication with the set CPS password fails, a warning message (→ page 111) appears.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
CHANGE PARTITION NAME	Sets or changes the names of partitions in a storage device. **Note:** • The default value is the date and time when the partition was created. • This is enabled only for TYPE S storage devices. • This is displayed only when storage explorer.	59.94Hz 50Hz
DELETE LAST PARTITION	Deletes the last partition on a storage device. **Note:** • Deletion is possible only when the cursor is on the last partition. • This is displayed only when storage explorer.	59.94Hz 50Hz
DELETE FOLDER	Deletes a folder on a storage device in FAT format.	59.94Hz 50Hz

THUMBNAIL SETUP

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
INDICATOR	Select any of the following items you want to display and press the [SET] button to add a check mark to the item. When “ALL HIDE” is selected, other items cannot be selected. ALL HIDE: Hides all of the indicators. MARKER: Displays the shot marker indicator. TEXT MEMO: Displays the text memo indicator. WIDE: Displays the wide indicator. PROXY: Displays the proxy indicator. **Note:** Regardless of the above settings, the bad clip indicator (NG)/(NG), unknown clip indicator, and incomplete clip indicator are always displayed.	59.94Hz 50Hz
DATA DISPLAY	Selects the items to display in the time display. TC: Time code UB: User bits TIME: Time of recording DATE: Date of recording DATE TIME: Date and time of recording CLIP NAME: Clip name USER CLIP NAME: Up to the first fifteen characters in the user clip name SLOT: Slot number THUMBNAIL TC: Time code of thumbnail position	59.94Hz 50Hz
THUMBNAIL SIZE	Sets the size of thumbnails displayed on the screen in thumbnail mode. SMALL: Small (thumbnail display 4 x 3, property display) MEDIUM: Standard (thumbnail display: 4 x 3) LARGE: Large (thumbnail display: 3 x 2)	59.94Hz 50Hz
PB POSITION	Sets the playback start position for playback on the thumbnail screen. RESUME: Plays from the position where playback was stopped. THUMBNAIL TC: Plays from the time code of the thumbnail position. START TC: Plays from the start time code (beginning of the clip).	59.94Hz 50Hz
SORT	Sets the display order for thumbnails. OFF: Recorded order SLOT: Slot order (clips in the same slot are displayed according to the date and time of recording)	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
PROPERTY DISP.	Sets the items to display in the simplified property display on the left side of the thumbnails. USER CLIP NAME: Indicates the name of a user clip START TC: Indicates the start time code. REC DATE: Indicates the date of recording. REC TIME: Indicates the time of recording. NUM. OF AUDIO CH: Indicates the number of audio channels. AUDIO RATE: Indicates the audio sampling rate. AUDIO BIT: Indicates audio bit rate. CREATOR: Indicates the creator. SHOOTER: Indicates the shooter. PLACE NAME: Indicates the shooting place. PROGRAM NAME: Indicates the program name. SCENE NO.: Indicates the scene number. TAKE NO.: Indicates the take number. REPORTER: Indicates the reporter. PURPOSE: Indicates the purpose. OBJECT: Indicates the object. START UB: Indicates the start user bit. REC RATE: Indicates the recording frame rate. LAST UP DATE: Indicates the last update date. LAST UP PERSON: Indicates the last person who updated the clip. MANUFACTURER: Indicates the name of the manufacturer. SERIAL NO.: Indicates the serial number. MODEL NAME: Indicates the model name. ALTITUDE: Indicates the altitude. LONGITUDE: Indicates the longitude. LATITUDE: Indicates the latitude. 1ST TEXT MEMO: Indicates the contents of the first text memo. THUMBNAIL OFFSET: Indicates the thumbnail recording position. **Note:** • Up to six items can be displayed simultaneously. • When the sixth item has been selected, no other unchecked item can be selected. • Clearing the check mark from a checked item allows you to select another item.	**59.94Hz** **50Hz**

STORAGE COPY SETUP

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
VERIFY	Sets whether to perform verification during exporting. ON: Performs verification. OFF: Does not perform verification. **Note:** This is enabled only for TYPE S formatted storage devices.	**59.94Hz** **50Hz**

REC/PB

REC/PB FUNCTION

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
RECORDING	Selects the recording method. NORMAL: Normal recording LOOP: Loop recording	59.94Hz 50Hz
AUTO REC	Selects whether recording and stopping is performed automatically in accordance with the record and stop signals in the HD SDI*1 input signals from a camera-recorder. TYPE1: Recording and stopping is performed automatically in accordance with the record and stop signals in the LTC information attached to HD SDI signals. TYPE2: Recording and stopping is performed automatically in accordance with the record and stop signals in the SVITC information attached to HD SDI signals. OFF: Recording and stopping is not performed automatically. **Note:** • SD SDI signals are not supported. • When this is set to other than OFF and the status becomes REC PAUSE in REMOTE mode, “AREC” is displayed in a superimposed screen. • Set the REMOTE mode. • To start automatic recording, press the [REC] ○ and [PAUSE] ▯▯ buttons simultaneously to switch the unit to the REC PAUSE state. This function does not work in any state other than REC PAUSE. Also, the unit switches to the REC PAUSE state after an automatic stop. • In normal recording mode, this setting is not available and an automatic stop is not performed.	59.94Hz 50Hz
REPEAT PLAY	Sets whether to perform repeat playback during playback. ON: Performs repeat playback. After the last clip is played, playback continues from the beginning clip. OFF: Does not perform repeat playback. Stops playback at the end of the last clip. **Note:** • Repeat playback is not available during TEXT MEMO playback. • If a P2 card is removed during repeat playback, playback is stopped when a clip that no longer exists is reached. • Even if you insert a P2 card during repeat playback, the additional clips will not be played back until you stop repeat playback and then start repeat playback again.	59.94Hz 50Hz

*1 3G-SDI LEVEL-A, 3G-SDI LEVEL-B DL, and 1.5G-SDI signals are written as “HD SDI” signals.

REC/PB SETUP

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
REC MEDIA	Selects the slots for recording. P2: Uses the P2 memory card slots (1 and 2). microP2: Uses the microP2 memory card slots (3 and 4). **Note:** Recording is not possible for a slot that is not selected but playback is possible. The slot indication is the same as that of a card for which recording is prohibited.	59.94Hz 50Hz
FILE SPLIT	Selects whether to split the recording file every 4 GB or record one file when recording to a microP2 memory card (over 32 GB) in the AVC-LongG format. ONE FILE: Records to one file. SPLIT: Splits the clip every 4 GB. **Note:** If you select “ONE FILE,” that clip will not be able to be copied to a P2 memory card or a 32 GB microP2 memory card or copied or exported to a storage device.	59.94Hz 50Hz
CC REC	Selects whether to record a closed caption signal superimposed on the SD SDI input signal. ON: Records a closed caption signal superimposed on an input signal. OFF: Does not record a closed caption signal. The EE output is also blanked.	59.94Hz
CC(F1) BLANK	Turns on or off closed caption signals in the first field output from the SD SDI and analog composite output during playback. BLANK: Forcibly blanks signals. THROUGH: Does not blank signals. **Note:** In EE mode, the closed captions are output superimposed on the input signal.	59.94Hz
CC(F2) BLANK	Turns on or off closed caption signals in the second field output from the SD SDI and analog composite output during playback. BLANK: Forcibly blanks signals. THROUGH: Does not blank signals. **Note:** In EE mode, the closed captions are output superimposed on the input signal.	59.94Hz
STOP EE SEL	Selects whether to switch to EE mode or playback mode when STOP is pressed. EE: EE mode PB: Playback mode	59.94Hz 50Hz
SHUTTLE MAX	Sets the maximum speed for the shuttle operation. X8: 8 x normal speed X16: 16 x normal speed X32: 32 x normal speed X60: 60 x normal speed X100: 100 x normal speed	59.94Hz 50Hz
FF.REW MAX	Sets the maximum speed for the FF and REW operation. X32: 32 x normal speed X60: 60 x normal speed X100: 100 x normal speed SEEK: Seeks (moves to) the beginning of the clip **Note:** • The FF and REW operations for the FF and REW commands from the REMOTE connector are also performed at 100 x normal speed when “SEEK” is selected. However, when the “ID OF 9P REMOTE” (→ page 91) menu item is set to “ORIGINAL,” the seek (movement) operations are initiated by the FF and REW commands from the REMOTE connector. The cursor moves to the left or right in the thumbnail screen. • The seek (movement) operations are enabled in playback mode.	59.94Hz 50Hz
SEEK POS SEL	Sets the positions to which to move with the seek (movement) operations performed by pressing the [NEXT] button and [PREV] button. CLIP: Beginning of the clip CLIP&TEXT MEMO: Beginning of the clip or the setting point of a text memo	59.94Hz 50Hz
PLAY DELAY	Sets the play delay time in frame increments. 0 to 15: Frame 0 to frame 15	59.94Hz 50Hz

PROXY SETUP

◆Note:

When other than “NORMAL” is selected in the “REC/PB FUNCTION” - “RECORDING” (→ page 86) setting menu item, proxy recording cannot be performed even if “REC MEDIA” is set to “P2” or “P2&SD.”

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
REC MEDIA	Selects the media for proxy data recording. P2: Records proxy data to P2 cards. P2&SD: Records proxy data to both P2 cards and SD memory cards. OFF: Does not record proxy data.	59.94Hz 50Hz
REC MODE (HD)	Sets the recording mode for proxy data. (Only in HD mode) For details on each mode, refer to “Recording modes and recording signals (video and audio)” (→ page 29).	59.94Hz 50Hz
TC SUPER	Sets superimposing the time code display on the proxy data recording video. UPPER: Superimposes the time code display at the top of the recording video. LOWER: Superimposes the time code display at the bottom of the recording video. OFF: Does not superimpose the time code display on the recording video.	59.94Hz 50Hz

TC/UB/CTL

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
CTL DISPLAY	Selects the 12- or 24-hour format for the CTL counter display. ±12h: 12-hour format display 24h: 24-hour format display	59.94Hz 50Hz
TCG MODE	Sets the operating mode of the internal time code generator. REGEN: Synchronizes the internal time code generator to maintain continuity with the last time code recorded on the P2 card. PRESET: Starts recording from the value set with the [TC PRESET] button. EXT: Uses the external time code input from the TIME CODE IN connector or VITC or SLTC of the video signal. Set the selection in the “EXT TC SEL” (→ page 89) menu item.	59.94Hz 50Hz
UBG MODE	Sets the operating mode for the user bits of the internal time code generator. REGEN: Synchronizes the internal time code generator with the last user bit recorded on a P2 card. PRESET: Starts recording from the value set with the [TC PRESET] button. EXT: Uses the external UB input from the TIME CODE IN connector or VITC or SLTC of the video signal. Set the selection in the “EXT TC SEL” (→ page 89) menu item.	59.94Hz 50Hz
RUN MODE	Sets the operating mode for advancing the internal time code generator. REC RUN: Advances the internal time code generator only during recording. FREE RUN: Advances the internal time code generator while the power is on regardless of the operating mode.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
EXT TC SEL	Sets the time code to use when an external time code is used. EXT LTC: LTC of TIME CODE IN connector. SLTC: LTC information added to the serial signal input to the SDI IN connector. SVITC: VITC information added to the serial signal input to the SDI IN connector. **Note:** When “SLTC” or “SVITC” is set and “SD SDI” is selected as the input signal, the VITC of the input video signal is used.	59.94Hz 50Hz
DF MODE	Sets the drop frame mode or non-drop frame mode for CTL and TCG. DF: Uses drop frame mode. NDF: Uses non-drop frame mode.	59.94Hz
VITC BLANK	Selects whether to output VITC signals at the positions specified in the “VITC POS-1” and “VITC POS-2” menu items during playback. BLANK: Does not output a VITC signal. THROUGH: Outputs VITC signals. **Note:** • This setting is enabled only during VIDEO and SD SDI output. • In EE mode, the VITC signal superimposed on the input signal is output as is.	59.94Hz 50Hz
VITC POS-1	Sets the position to insert the VITC signal. • When set to 59.94 Hz: LINE 10 to LINE 16 to LINE 20 • When set to 50 Hz: LINE 7 to LINE 11 to LINE 22 **Note:** • The same line as the “VITC POS-2” menu item cannot be selected. • This setting is enabled only during VIDEO and SD SDI output. • Pressing the [RESET] button will not restore the factory defaults.	59.94Hz 50Hz
VITC POS-2	Sets the position to insert the VITC signal. • When set to 59.94 Hz: LINE 10 to LINE 18 to LINE 20 • When set to 50 Hz: LINE 7 to LINE 13 to LINE 22 **Note:** • The same line as the “VITC POS-1” menu item cannot be selected. • This setting is enabled only during VIDEO and SD SDI output. • Pressing the [RESET] button will not restore the factory defaults.	59.94Hz 50Hz
HD EMBD LTC	Selects whether to superimpose the LTC information on HD SDI output. ON: Superimposes LTC. OFF: Does not superimpose LTC.	59.94Hz 50Hz
HD EMBD VITC	Selects whether to superimpose the VITC information on HD SDI output. ON: Superimposes VITC. OFF: Does not superimpose VITC.	59.94Hz 50Hz
TC OUTPUT REF	Switches the phase of time code output from the TIME CODE OUT connector relative to external LTC input when “TCG MODE” is set to “EXT”. (Only in EE mode) TC IN: Synchronized with the external time code input. VIDEO OUT: Synchronized with the output video signal.	59.94Hz 50Hz

REC META DATA

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
LOAD	Loads a metadata upload file stored on an SD memory card.	59.94Hz 50Hz
RECORD	Sets whether to add the loaded metadata during recording. ON: Adds the metadata. OFF: Does not add the metadata.	59.94Hz 50Hz
USER CLIP NAME	Sets the data to be recorded to USER CLIP NAME. • When “RECORD” is “ON” TYPE1: Records the loaded data setting values. TYPE2: Records the loaded data and counter values. • When “RECORD” is “OFF” TYPE1: Records the same values as GLOBAL CLIP ID. TYPE2: Records the same values as CLIP NAME.	59.94Hz 50Hz
INITIALIZE	Deletes and initializes all the loaded metadata.	59.94Hz 50Hz
PROPERTY	Allows you to check and edit the loaded metadata.	59.94Hz 50Hz

I/F SETUP

CLOCK

For details, refer to “Setting the Year, Month, Day, and Time” (→ page 21).

BASIC

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
ID OF 9P REMOTE	Sets the ID information to return to the controller. DVCPRO: DVCPRO ORIGINAL: Original ID OTHER: Other **Note:** Set VTR ID information other than DVCPRO for “OTHER.”	59.94Hz 50Hz
LOCAL ENABLE	Restricts the front operation panel buttons that can be operated when REMOTE is set to ON. ENABLE: All buttons are available. STOP:Only the [STOP] ▫ button is available. DISABLE: No buttons are available.	59.94Hz 50Hz
AFTER CUEUP	Selects the mode for the unit after the cue-up operation is performed. STOP: STOP mode SHTL +0.0: Still image (SHTL +0.0) mode VAR +0.0: Still image (VAR +0.0) mode	59.94Hz 50Hz
REF ALARM	Selects whether to indicate a warning when the reference video signal set in “OUTPUT REF” (→ page 106) is not input. ON: The lamp of the [STOP] ▫ button flashes to indicate a warning. OFF: Does not indicate a warning.	59.94Hz 50Hz
BEEP	Turns the BEEP sound on or off. ON: Outputs a beep sound. OFF: Does not output a beep sound. **Note:** A beep sound is also output from the ANALOG AUDIO MON output connectors.	59.94Hz 50Hz
KEYBOARD	Sets the type of keyboard to be connected. QWERTY(101) QWERTY(109) AZERTY QWERTZ	59.94Hz 50Hz
POWER ON GUI	Sets whether to display the thumbnail screen at power-on. THUMBNAIL: Displays the thumbnail screen. OFF: Does not display the thumbnail screen.	59.94Hz 50Hz
AUTO POWER OFF	Sets the button operation inactivity period after which to turn off the power automatically. 10min: Turns off the power after 10 minutes of inactivity. 30min: Turns off the power after 30 minutes of inactivity. 60min: Turns off the power after 60 minutes of inactivity. 90min: Turns off the power after 90 minutes of inactivity. OFF: Does not turn off the power of the unit and maintains the energized state. **Note:** • Even when this setting is other than OFF, the power is not turned off during playback (including variable speed playback, fast forward/fast rewind, and pause) and recording. • When the unit is connected to an external device with a USB cable and is in the communicating state, the power is not turned off even if the above button activity does not occur.	59.94Hz 50Hz

VIDEO

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
INPUT SEL	Selects the video input signal. HD SDI: Selects the SDI connector (HD signal input). SD-SDI: Selects the SDI connector (SD signal input). INT SG: Selects the internal signal generator. The signal switches to the internal signal selected in the INT SG menu item. **Note:** • When "SD SDI" is selected for the signal format of the "LINE&FREQ" setting, the signal is up converted automatically to HD and recorded. • When 1080P is up converted from an SD signal, the video will not be converted properly.	59.94Hz 50Hz
INT SG	Sets the internal signal type. SMPTE and ARIB signals are enabled only when the "LINE&FREQ" setting is set to the HD format (black in SD mode). 100%CB: 100 % color bar 75%CB: 75 % color bar SMPTE: SMPTE color bar ARIB: ARIB color bar BLACK: Black	59.94Hz 50Hz
SG MOVE	Switches to the function for displaying a square that automatically changes its position on the INT SG. ON: Displays. OFF: Does not display.	59.94Hz 50Hz
WIDE SEL	Sets whether to record the WIDE information when "LINE&FREQ" is set to "480-59.94i" or "576-50i." WIDE: Records the information. NORMAL: Does not record the information.	59.94Hz 50Hz
SETUP(7.5%)*1	Switches the setup. (When 480-59.94i only) ON: Switches to the 7.5 % setup. OFF: Turns off the 7.5 % setup.	59.94Hz
EDH(SD)	Selects whether to superimpose EDH on SD SDI output signals. ON: Superimposes EDH. OFF: Does not superimpose EDH.	59.94Hz 50Hz
OUTPUT FORMAT	Selects the video signal output from the video output connector. AUTO: Switches output automatically in accordance with the current recording and playback format. • When 59.94 Hz is set 1080p: 1080/59.94p 1080i: 1080/59.94i 480i: 480/59.94i • When 50 Hz is set 1080p: 1080/50p 1080i: 1080/50i 576i: 576/50i **Note:** • When other than "AUTO" is selected, a signal that differs from the recording and playback format is automatically converted before output. • When 1080P is up converted from an SD signal, the video will not be converted properly. • When an SD signal is output, the 480/59.94p or 576/50p signal is output from the HDMI output connector.	59.94Hz 50Hz
3G-SDI OUT	Selects the 3G-SDI output format for when "LINE&FREQ" (→ page 105) is "1080-59.94P" or "1080-50P." LEVEL-A: Selects the 3G-SDI LEVEL-A format. LEVEL-B: Selects the 3G-SDI LEVEL-B DL format.	59.94Hz 50Hz

*1 This menu is only for the AJ-PD500P

Item	Settings and brief function description	FREQ indications
DOWNCON MODE	Selects the aspect ratio for down-conversion output. FIT-V: Changes the ratio to match the input size to the output size along the vertical axis. (The aspect ratio is maintained.) FIT-H: Changes the ratio to match the input size to the output size along the horizontal axis. (The aspect ratio is maintained.) FIT-HV: Changes the ratio to match the input size to the output size along the horizontal and vertical axes. (The aspect ratio may be distorted.)	59.94Hz 50Hz
UPCON MODE	Selects the angle of view for up-conversion recording. FIT-V: Changes the ratio to match the input size to the output size along the vertical axis. (The aspect ratio is maintained.) FIT-H: Changes the ratio to match the input size to the output size along the horizontal axis. (The aspect ratio is maintained.) FIT-HV: Changes the ratio to match the input size to the output size along the horizontal and vertical axes. (The aspect ratio may be distorted.)	59.94Hz 50Hz
GAMMA SELECT	Selects gamma correction. GAMMA1: Corrects video shot by Varicam or in the FILM REC mode on an AJ-HPX3100 to film-quality video. (Equivalent to Telecine 5 of HD Gamma Corrector on the AJ-GBX27G) GAMMA 2: Corrects video shot by Varicam or in the FILM REC mode on an AJ-HPX3100 to film-quality video. (Equivalent to Telecine 6 of HD Gamma Corrector on the AJ-GBX27G) GAMMA 3: Converts video shot by Varicam or in the FILM REC mode on an AJ-HPX3100 by applying a Cineon curve to produce video appropriate for film recording. OFF: Does not correct the gamma. **Note:** • This setting is enabled during playback. • If other than “OFF” is selected, the gamma correction value (GM∗) will always be displayed on the OSD. • Turning the power of the unit off also returns this GAMMA setting to “OFF.”	59.94Hz 50Hz

AUDIO

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
INPUT SEL	Selects the audio input signal. SDI: Selects the SDI connector. ANALOG: Selects the ANALOG AUDIO IN connector. AES/EBU: Selects the AES/EBU connector. INT SG: Selects the internal signal generator.	59.94Hz 50Hz
INPUT CH1 LEVEL	Selects the level for the CH1 analog audio input. 4 dB 0 dB -3 dB -20 dB	59.94Hz 50Hz
INPUT CH2 LEVEL	Selects the level for the CH2 analog audio input. 4 dB 0 dB -3 dB -20 dB	59.94Hz 50Hz
RATE CONV.	Records and plays without passing the video through the rate converter (without applying a digital filter) during digital audio input/output. ON: Records and plays while passing the data through the rate converter. OFF: Records and plays without passing the data through the rate converter. **Note:** • The on/off of all recording and playback channels is controlled simultaneously. It cannot be set for each channel separately. • When the rate converter is off, the video input and digital audio input need to be synchronized. The video input and the reference signal selected in "OUTPUT REF" (→ page 106) also need to be synchronized. (If they are not synchronized, noise may be output.)	59.94Hz 50Hz
OUTPUT CH1/L LEVEL	Selects the level for the CH1/L analog audio output. 4 dB 0 dB -3 dB -20 dB	59.94Hz 50Hz
OUTPUT CH2/R LEVEL	Selects the level for the CH2/R analog audio output. 4 dB 0 dB -3 dB -20 dB	59.94Hz 50Hz
OUTPUT EMBD(SD) CH	Selects the channels to multiplex on the SD SDI output. OFF: Does not superimpose. CH1-4: Outputs the four channels CH1-4. CH5-8: Outputs the four channels CH5-8. CH1-8: Outputs the eight channels CH1-8. **Note:** • The four channels CH1-4 are always multiplexed during DV, DVCPRO, and DVCPRO50 playback. • Some devices may not be able to receive eight channels. Check the specifications of the receiving device before setting CH1-8.	59.94Hz 50Hz
OUTPUT EMBD(HD) CH	Selects the channels to multiplex on the HD SDI output. OFF: Does not superimpose. CH1-8: Outputs the eight channels CH1-8. **Note:** Channels not included in a playback clip are output as no sound.	59.94Hz 50Hz
OUTPUT AES/EBU CH	Sets the channels to output to AES/EBU. CH1-4: Outputs the four channels CH1-4. CH5-8: Outputs the four channels CH5-8. **Note:** Channels not included in a playback clip are output as no sound.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
OUTPUT ANALOG CH	Sets the channels to output to ANALOG AUDIO. MONITOR: Outputs the signal selected in "MONITOR CH". CH1-2: Outputs the two channels CH1-2. CH3-4: Outputs the two channels CH3-4. CH5-6: Outputs the two channels CH5-6. CH7-8: Outputs the two channels CH7-8. **Note:** Channels not included in a playback clip are output as no sound.	59.94Hz 50Hz
MONITOR CH	Sets the audio to output to the monitor outputs. Select the outputs for L and R. HDMI output audio is also in accordance with this setting. CH1 / 2: Outputs CH1 to L and CH2 to R. CH3 / 4: Outputs CH3 to L and CH4 to R. CH1 + 2 / 3 + 4: Outputs CH1+2 to L and CH3+4 to R. CH1 + 3 / 2 + 4: Outputs CH1+3 to L and CH2+4 to R. CH5 / 6: Outputs CH5 to L and CH6 to R. CH7 / 8: Outputs CH7 to L and CH8 to R. CH5 + 6 / 7 + 8: Outputs CH5+6 to L and CH7+8 to R. CH5 + 7 / 6 + 8: Outputs CH5+7 to L and CH6+8 to R.	59.94Hz 50Hz
MONITOR OUT VOL.	Selects whether to link the volume of the audio monitor output from the MON L/R output connectors to the monitor volume adjustment knob. UNITY: Outputs the audio monitor output at a fixed level regardless of the position of the monitor volume adjustment knob. VARIABLE: Links the volume of the audio monitor output to the monitor audio adjustment knob.	59.94Hz 50Hz
SPEAKER OUT	Turns on/off speaker output. ON: Outputs from the speakers. OFF: Does not output from the speakers. (BEEP sounds are also not output.)	59.94Hz 50Hz
LEVEL METER	Switches the channels to indicate on the audio level meter. CH1-4: Outputs the four channels CH1-4. CH5-8: Outputs the four channels CH5-8. CH1-8: Outputs the eight channels CH1-8.	59.94Hz 50Hz
REF LEVEL	Selects the standard level. FS-20*1: -20 dB FS-18*2: -18 dB FS-12: -12 dB	59.94Hz 50Hz

*1 This is the factory default setting of the AJ-PD500P.
*2 This is the factory default setting of the AJ-PD500E.

LAN

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
NETWORK SEL	Selects network connection method. LAN: Connects via the LAN connector on the unit. OFF: Does not use the network.	59.94Hz 50Hz
CLIENT SERVICE		
FTP SERVER URL	Sets the name or address of the connection destination server.	59.94Hz 50Hz
LOGIN USER	Sets the user ID for the connection.	59.94Hz 50Hz
LOGIN PASSWORD	Sets the password for the connection.	59.94Hz 50Hz
SSH	Set this for transferring files using SSH. ENABLE: Uses SSH. DISABLE: Does not use SSH.	59.94Hz 50Hz
LAN PROPERTY		
MAC ADDRESS	Displays the MAC address of the LAN connector of the unit.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
DHCP	Automatically sets the network settings by DHCP. ENABLE: Uses DHCP (automatic assignment) DISABLE: Enter the settings without using DHCP (automatic assignment). When “DISABLE” is selected, the following menu items are displayed. Set the items. IP ADDRESS: Sets the IP address. SUBNET MASK: Sets the subnet mask. DEFAULT GATEWAY: Sets the default gateway address. PRIMARY DNS: Sets the address of the primary DNS server. SECONDARY DNS: Sets the address of the secondary DNS server.	59.94Hz 50Hz
NETWORK TOOLS		
LOG DISPLAY	Displays the connection log.	59.94Hz 50Hz
STATUS DISPLAY	Displays the network status.	59.94Hz 50Hz
INITIALIZE	Initializes various network settings to restore them to the factory defaults.	59.94Hz 50Hz
PING	Checks the network connection.	59.94Hz 50Hz

DISPLAY

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
OSD OUTPUT	Sets whether to output the thumbnail screen, menu screen, and other screen display to MONITOR OUT (SDI MON connector, HDMI connector, VIDEO OUT connector) or SDI OUT (SDI OUT 1 to 2 connectors). LCD: Does not output (displayed only on the LCD monitor). LCD&MONITOR: Outputs to MONITOR OUT. ALL: Outputs to all of the LCD, MONITOR OUT, and SDI OUT.	59.94Hz 50Hz
OSD GRADE	Sets superimposed display for the recording or playback screen. ALL: Displays all. NO LEVEL METER: Does not display the audio level meter.	59.94Hz 50Hz
OSD TC SELECT	Sets the superimposed display items. Here, data indicates the CTL/TC/UB value selected with the [COUNTER] button. TIME: Data T&STATUS: Data and operating status T&S&M: Data, operating status, clip number, video format, audio bit rate T&REC TIME: Data and REC TIME T&REC DATE: Data and REC DATE T&UB: Data and user bits However, when UB is selected with the [COUNTER] button, the time code is indicated after the user bits. T&CTL: Data and CTL However, when CTL is selected with the [COUNTER] button, the time code is indicated after the CTL data. T&T: Data and time code **Note:** • When “T&S&M” is set, an error message appears in the superimposed display if a warning or error occurs.	59.94Hz 50Hz
WFM TYPE	Selects waveform and vector monitor display. WAVE: Waveform display VECTOR: Vector display OFF: Does not display.	59.94Hz 50Hz

Item	Settings and brief function description	FREQ indications
WFM POSI	Selects the display position for the waveform monitor. RIGHT/TOP: Positioned at top right. LEFT/TOP: Positioned at top left. RIGHT/BOTTOM: Positioned at bottom right. LEFT/BOTTOM: Positioned at bottom left. **Note:** The display on the LCD monitor moves left or right only.	59.94Hz 50Hz
4:3 MARKER	Sets whether to display the 4:3 marker on the LCD monitor. ON: Displays. OFF: Does not display.	59.94Hz 50Hz

LCD MONITOR

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
TIME OUT	Turns off the backlight of the LCD monitor automatically if a set time (approximately 5 minutes) elapses after any operation is performed. 5min: Turns off the backlight of the LCD monitor automatically after approximately 5 minutes. OFF: Does not turn off the backlight of the LCD monitor.	59.94Hz 50Hz
BACKLIGHT	Adjusts the brightness of the LCD monitor backlight. -3: Darkest I 0: Normal brightness 1: Brighter than normal	59.94Hz 50Hz
BRIGHTNESS	Adjusts the brightness of the LCD monitor. -15 to 0 to 15	59.94Hz 50Hz
COLOR LEVEL	Adjusts the color level of the LCD monitor. -15 to 0 to 15	59.94Hz 50Hz
CONTRAST	Adjusts contrast of the LCD monitor. -30 to 0 to 30 **Note:** This value multiplied by the R, G, and B contrast setting becomes the contrast adjustment value for R, G, and B.	59.94Hz 50Hz
R CONTRAST	Adjusts the R (Red) contrast of the LCD monitor. -30 to 0 to 30 **Note:** This setting multiplied by the “CONTRAST” setting becomes the contrast setting.	59.94Hz 50Hz
G CONTRAST	Adjusts the G (Green) contrast of the LCD monitor. -30 to 0 to 30 **Note:** This setting multiplied by the “CONTRAST” setting becomes the contrast setting.	59.94Hz 50Hz
B CONTRAST	Adjusts the B (Blue) contrast of the LCD monitor. -30 to 0 to 30 **Note:** This setting multiplied by the “CONTRAST” setting becomes the contrast setting.	59.94Hz 50Hz

EXT DC IN

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
EXT DC IN SELECT	Sets the remaining level detection type for when an external DC power supply or battery is connected to the DC IN connector. Set NEAR END and END of TYPE A and TYPE B to match the battery that is to be used. DC PWR SUPPLY TYPE A TYPE B	59.94Hz 50Hz
TYPE A NEAR END	Sets the voltage (in 0.1 V steps) at which to display warning information when the voltage drops for the battery to be used as “TYPE-A” selected in the “EXT DC IN SELECT” menu item. 10.6 V to 12.9 V to 15.0 V **Note:** A voltage that will be lower than END cannot be set.	59.94Hz 50Hz
TYPE A END	Sets the voltage (in 0.1 V steps) at which to automatically turn off the power of the unit when the voltage drops for the battery to be used as “TYPE-A” selected in the “EXT DC IN SELECT” menu item. 10.6 V to 12.4 V to 15.0 V **Note:** A voltage that will be higher than NEAR cannot be set.	59.94Hz 50Hz
TYPE B NEAR END	Sets the voltage (in 0.1 V steps) at which to display warning information when the voltage drops for the battery to be used as “TYPE-B” selected in the “EXT DC IN SELECT” menu item. 10.6 V to 12.9 V to 15.0 V **Note:** A voltage that will be lower than END cannot be set.	59.94Hz 50Hz
TYPE B END	Sets the voltage (in 0.1 V steps) at which to automatically turn off the power of the unit when the voltage drops for the battery to be used as “TYPE-B” selected in the “EXT DC IN SELECT” menu item. 10.6 V to 12.4 V to 15.0 V **Note:** A voltage that will be higher than NEAR cannot be set.	59.94Hz 50Hz

USER BUTTON

You can assign specific functions set in menus to the [USER1] to [USER6] buttons.
The settings are stored internally and retained even when the unit is turned off and on. The assigned functions and settings can be confirmed in the DIAG display.

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
USER1	TEXT MEMO: Functions as the text memo button. MARKER: Functions as the shot marker ON/OFF button. DELETE: Functions as the “DELETE” shortcut button. FORMAT: Functions as the “FORMAT” shortcut button. COPY: Functions as the “COPY” shortcut button. EXPORT: Functions as the “EXPORT” shortcut button. CLIP PROPERTY: Functions as the “CLIP PROPERTY” shortcut button. CARD STATUS: Functions as the “CARD STATUS” shortcut button. ONE CLIP PLAY: Functions as the “ONE CLIP PLAY” button. SLOT CLIPS: Switches the thumbnail screen display between “SELECTED CLIPS” → “SLOT1” → “SLOT2” →. SLOT SEL: Changes the P2 card slot for recording. REC MEDIA: Changes the “REC/PB SETUP” - “REC MEDIA” settings. DATA DISPLAY: Changes the “DATA DISPLAY” settings. STOP EE SEL: Changes the “STOP EE SEL” settings. OUTPUT REF: Changes the “OUTPUT REF” settings. SEEK POS SEL: Changes the “SEEK POS SEL” settings. CTL DISPLAY: Changes the “CTL DISPLAY” settings. TCG MODE: Changes the “TCG MODE” settings. UBG MODE: Changes the “UBG MODE” settings. RUN MODE: Changes the “RUN MODE” settings. EXT TC SEL: Changes the “EXT TC SEL” settings. VIDEO IN SEL:Changes the “INPUT SEL” (VIDEO) settings. INT SG: “VIDEO” - Changes the “INT SG” settings. AUDIO IN SEL: Changes the “INPUT SEL” (AUDIO) settings. MONITOR CH: Changes the “MONITOR CH” settings. LEVEL METER: Changes the “LEVEL METER” settings. OSD OUTPUT: Changes the “OSD OUTPUT” settings. OSD GRADE: Changes the “OSD GRADE” settings. WFM TYPE: Changes the “WFM TYPE” settings. **Note:** • The same item can be assigned to other [USER] buttons.	**59.94Hz** **50Hz**
USER2	The settings are the same as “USER1”. The factory default setting is MONITOR CH.	
USER3	The settings are the same as “USER1”. The factory default setting is TEXT MEMO.	
USER4	The settings are the same as “USER1”. The factory default setting is REC MEDIA.	
USER5	The settings are the same as “USER1”. The factory default setting is LEVEL METER.	
USER6	The settings are the same as “USER1”. The factory default setting is MARKER.	

PARALLEL PORT

Registers functions to the input connectors and registers statuses to the output connectors of the PARALLEL REMOTE connector.

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
PORT1	REC BUTTON: Performs the same operation as the [REC] ○ button. REC+PLAY BUTTON: Performs the same operation as simultaneously pressing the [REC] ○ and [PLAY] ▷ buttons. PLAY BUTTON: Performs the same operation as the [PLAY] ▷ button. STILL/PAUSE BUTTON: Performs the same operation as the [PAUSE] ▯▯ button. FF BUTTON: Performs the same operation as the [FF] ▷▷ button. STOP BUTTON: Performs the same operation as the [STOP] □ button. REW BUTTON: Performs the same operation as the [REW] ◁◁ button. SHTL BUTTON: Performs the same operation as the [SEARCH] button. AUDIO LVL REC BUTTON: Performs the same operation as the [AUDIO LEVEL-REC] button. AUDIO LVL PB BUTTON: Performs the same operation as the [AUDIO LEVEL-PB] button. REMOTE BUTTON: Performs the same operation as the [REMOTE] button. COUNTER BUTTON: Performs the same operation as the [COUNTER] button. RESET BUTTON: Performs the same operation as the [RESET] button. PRESET BUTTON: Performs the same operation as the [TC PRESET] button. DISPLAY BUTTON: Performs the same operation as the [DISPLAY] button. USER1 BUTTON: Performs the same operation as the [USER1] button. USER2 BUTTON: Performs the same operation as the [USER2] button. USER3 BUTTON: Performs the same operation as the [USER3] button. USER4 BUTTON: Performs the same operation as the [USER4] button. USER5 BUTTON: Performs the same operation as the [USER5] button. USER6 BUTTON: Performs the same operation as the [USER6] button. UP BUTTON: Performs the same operation as the up cursor button. DOWN BUTTON: Performs the same operation as the down cursor button. LEFT BUTTON: Performs the same operation as the left cursor button. RIGHT BUTTON: Performs the same operation as the right cursor button. SET BUTTON: Performs the same operation as the [SET] button. THUMBNAIL BUTTON: Performs the same operation as the [THUMBNAIL] button. SHIFT BUTTON: Performs the same operation as the [SHIFT] button. MENU BUTTON: Performs the same operation as the [MENU] button. EXIT BUTTON: Performs the same operation as the [EXIT] button. KEY INHIBIT: Prohibits/allows operation of the front panel. TEXT MEMO: Adds a text memo. MARKER: Adds a shot mark. ONE CLIP PLAY: Functions as the ONE CLIP PLAY button. SLOT CLIPS: Switches the thumbnail screen display between “SELECTED CLIPS” > “SLOT1” > “SLOT2” >. SLOT SEL: Changes the P2 card slot for recording. REC MEDIA: “REC/PB SETUP” - Changes the “REC MEDIA” settings. TCG MODE: Changes the “TCG MODE” settings. UBG MODE: Changes the “UBG MODE” settings. RUN MODE: Changes the “RUN MODE” settings. EXT TC SEL: Changes the “EXT TC SEL” settings. VIDEO IN SEL:Changes the “INPUT SEL” (VIDEO) settings. INT SG: “VIDEO” - Changes the “INT SG” settings. AUDIO IN SEL: Changes the “INPUT SEL” (AUDIO) settings. MONITOR CH SEL: Changes the “MONITOR CH SEL” settings. LEVEL METER: Changes the “LEVEL METER” settings. WFM TYPE: Changes the “WFM TYPE” settings.	**59.94Hz** **50Hz**
PORT2	The settings are the same as PORT1. The factory default setting is STOP BUTTON.	
PORT3	The settings are the same as PORT1. The factory default setting is FF BUTTON.	
PORT4	The settings are the same as PORT1. The factory default setting is REW BUTTON.	
PORT5	The settings are the same as PORT1. The factory default setting is REC BUTTON.	
PORT6	The settings are the same as PORT1. The factory default setting is SHTL BUTTON.	
PORT7	The settings are the same as PORT1. The factory default setting is USER1 BUTTON.	

Item	Settings and brief function description	FREQ indications
PORT9	REC: Becomes active in the REC or REC PAUSE state. PLAY: Becomes active in the PLAY or REC state. FF: Becomes active in the FF state. REW: Becomes active in the REW state. STOP: Becomes active in the STOP state. PAUSE: Becomes active in the STILL or REC PAUSE state. SHTL: Becomes active in the SHTL state. SHTL 0.0: Becomes active when the speed is the 0.0 state in SHTL. NO CARD: Becomes active in the state of all P2 memory card slots and microP2 memory card slots containing no cards. (This is active in USB DEVICE mode.) REMOTE: Same as the REMOTE lamp. ERROR0: ERROR1: Becomes active when an error or warning occurs. Becomes active for 3 seconds when BUSY or warning. STATUS 0,1= (0,0): No error (1,0): AUTO OFF (1,1): BUSY, warning TC INPUT 0: TC INPUT 1: Becomes active in accordance with the time code generator selection state. INPUT0,1= (0,0): External SLTC (0,1): External LTC (1,0): Undefined (1,1): INT AUDIO INPUT UNITY: Becomes active when all of the audio input channels are “UNITY.” PANEL STOP: Becomes active when the [STOP] □ button is in the pressed state. REC INHIBIT: Becomes active when all of the recording target P2 cards are in the write protected state. KEY INHIBIT: Becomes active when front panel operation is prohibited.	**59.94Hz** **50Hz**
PORT10	The settings are the same as PORT9. The factory default setting is FF.	
PORT11	The settings are the same as PORT9. The factory default setting is REW.	
PORT12	The settings are the same as PORT9. The factory default setting is REC.	
PORT13	The settings are the same as PORT9. The factory default setting is REMOTE.	
PORT14	The settings are the same as PORT9. The factory default setting is SHTL 0.0.	

FILE

SETUP DATA (SD CARD)

Item	Settings and brief function description	FREQ indications
LOAD	Loads the file selected from the list of setup data files saved to an SD memory card to the unit.	59.94Hz 50Hz
SAVE	Overwrites the file selected in the list of existing files saved to an SD memory card with the current menu settings of the unit.	59.94Hz 50Hz
SAVE AS	Saves the current menu settings of the unit to an SD memory card after a file name and title have been entered.	59.94Hz 50Hz

SETUP DATA SELECT

Selects the menu items to save or load to/from an SD memory card in SETUP DATA (SD CARD).

Item	Settings and brief function description	FREQ indications
SYSTEM	Handles the “SYSTEM MODE” menu.	59.94Hz 50Hz
REC/PB	Handles the “REC/PB” menu.	59.94Hz 50Hz
CLIP	Handles the “CLIP” menu.	59.94Hz 50Hz
I/F SETUP	Handles the “I/F SETUP” menu.	59.94Hz 50Hz

SD CARD PROPERTY

Displays the SD memory card status.
You can check the format state, amount of free space, and other information.

SD STANDARD:	Indicates whether an SD memory card is formatted in compliance with the SD/SDHC/SDXC standard. SUPPORTED: SD/SDHC/SDXC compliant NOT SUPPORTED: Not SD/SDHC/SDXC compliant
USED:	Space used [bytes]
BLANK:	Space free [bytes]
TOTAL:	Total size [bytes]
PROXY REM:	Remaining recording space when proxy recording
NUMBER OF CLIP:	Number of clips on the SD memory card resulting from copying or proxy recording
PROTECT:	Write-protect state

FORMAT SD CARD

Formats the SD memory card.

LOAD USER DATA

Loads a user file saved to the memory of the unit.

INITIALIZE

Item	Settings and brief function description	FREQ indications
LOAD FACTORY DATA	Restores all menu settings to the factory default states. If this is selected, the “SYSTEM RESTART” confirmation message appears. Select “YES” to restart the system automatically.	59.94Hz 50Hz
SAVE USER DATA	Saves the menu settings as user data to the memory of the unit. You can use this for saving unique setup data. To load user data, select “FILE” → “LOAD USER DATA”.	59.94Hz 50Hz

Saving and loading setup data

You can save set menu items to an SD memory card, and load them to the unit.
There are two operations for saving to an SD memory card: SAVE which allows you to overwrite an existing file and SAVE AS which allows you to create a new file.

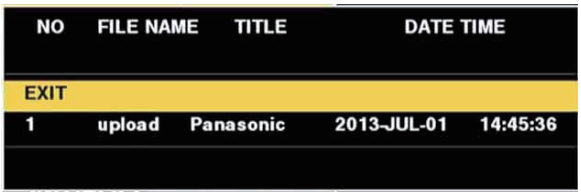
◆Note:

- To specify the menu items to save, you need to select the menu types to save in advance in the “SETUP DATA SELECT” (→ page 102) menu item.
- Insert the SD memory card to be used into the SD memory card slot.

■ Overwriting an existing file

1 Use the cursor buttons to align the cursor with the “SAVE” (→ page 102) menu item and then press the [SET] button.

A list of the setup data stored in the predetermined folder on the SD memory card is displayed as shown below.



2 Use the up or down cursor button to move to the file name item for overwriting and then press the [SET] button.

The title input screen and keyboard appear. Enter the characters (up to 8 characters) you want to set from the keyboard. (→ “Using a Keyboard” page 108)

3 After entering the title, press the [MENU] button.

4 Align the cursor with “YES” in the confirmation message and then press the [SET] button.

Saving of the file begins.

5 When the completion message appears, press the [SET] button.

■ Creating a new file

1 Use the cursor buttons to align the cursor with the “SAVE AS” (→ page 102) menu item and then press the [SET] button.

The file name and title name input screen and keyboard appear. Enter the file name (up to 8 characters) and title name (up to 12 characters) you want to set from the keyboard. (→ “Using a Keyboard” page 108)

2 After entering the file name and title name, use the cursor buttons to select the [OK] button.

3 Align the cursor with “YES” in the confirmation message and then press the [SET] button.

Saving of the file begins.

4 When the completion message appears, press the [SET] button.

◆Note:

Setup files saved with the unit cannot be used with other models. Likewise, setup files saved with other models cannot be used with the unit.

■ Loading a setup file

1 Use the cursor buttons to align the cursor with the “SETUP DATA (SD CARD)” - “LOAD” (→ page 102) menu item and then press the [SET] button.

A list of the setup files stored in the predetermined folder on the SD memory card is displayed.

2 Use the up or down cursor button to move to the file name item for overwriting and then press the [SET] button.

3 Align the cursor with “YES” in the confirmation message and then press the [SET] button.

The file loading process begins.
The “SYSTEM RESTART” confirmation message appears.
Select “YES” to restart the system automatically.

■ Writing setup data to the user area

1 Use the cursor buttons to move the cursor to the “SAVE USER DATA” (→ page 103) menu item and then press the [SET] button.

A confirmation message appears.

2 Move the cursor to “YES” in the confirmation message and then press the [SET] button.

The setup data is written to the user area in the memory of the unit.

3 When the confirmation message appears, select “OK” and press the [SET] button.

The “SAVE USER DATA” menu item is redisplayed.

■ Loading written user data

1 Move the cursor to the “LOAD USER DATA” (→ page 102) menu item and then press the [SET] button.

A confirmation message appears.

2 Move the cursor to “YES” in the confirmation message and then press the [SET] button.

The setup data is loaded from the user area in the memory of the unit.

3 When the confirmation message appears, select “OK” and press the [SET] button.

The LOAD USER DATA menu item is redisplayed.

SYSTEM

SYSTEM MODE

_ is the factory default setting.

Item	Settings and brief function description
LINE&FREQ	Sets the number of lines and frequency of the system, recording format, and audio quantization bit rate. When the number of lines and frequency are selected, only the items that can be set with that frequency are displayed. When the frequency is changed, the unit needs to be restarted. A dialog appears when a restart is required. **1080-59.94P:**Selects 1080p for the number of lines and 59.94 Hz for the system frequency. **1080-50P:**Selects 1080p for the number of lines and 50 Hz for the system frequency. **1080-59.94i***1**:**Selects 1080i for the number of lines and 59.94 Hz for the system frequency. **1080-50i***2**:**Selects 1080i for the number of lines and 50 Hz for the system frequency. **480-59.94i:**Selects 480i for the number of lines and 59.94 Hz for the system frequency. **576-50i:**Selects 576i for the number of lines and 50 Hz for the system frequency.
REC FORMAT	<"LINE&FREQ" submenu> Selects the recording codec. **AVC-I100:** Selects AVC-Intra100. **AVC-I50:** Selects AVC-Intra50. **AVC-G50:** Selects AVC-LongG50. **AVC-G25:** Selects AVC-LongG25. **DVCPRO HD:** Selects DVCPRO HD (100 Mbps). **DVCPRO50:** Selects DVCPRO50 (50 Mbps). **DVCPRO:** Selects DVCPRO (25 Mbps). **DV:** Selects DV (25 Mbps).
AUDIO SMPL RES	<"REC FORMAT" submenu> Selects the quantization bit rate for audio recording in the AVC-Intra 100 or AVC-Intra 50 recording format. **16BIT:** Sets the audio recording bit rate to 16 bit. **24BIT:** Sets the audio recording bit rate to 24 bit. **Note:** The audio recording bit rate is 24 bit when the recording format is AVC-LongG50, or AVC-LongG25 and 16 bit when the recording format is DVCPRO HD, DVCPRO50, DVCPRO, or DV, regardless of the setting of the setting item.

*1 This is the factory default setting of the AJ-PD500P.
*2 This is the factory default setting of the AJ-PD500E.

SYSTEM SETUP

_ is the factory default setting.

Item	Settings and brief function description	FREQ indications
SYS H(HD)	Adjusts the system phase of HD SDI output (in 13.5-ns/6.75-ns <1080/59.94p and 1080/50p> steps). **-2750** to **0** to **2750** **-:** Advances the phase. **+:** Delays the phase.	**59.94Hz** **50Hz**
SYS H(SD)	Adjusts the system phase of analog composite output and SD SDI output (in 37 ns steps). **-1728** to **0** to **1728** **-:** Advances the phase. **+:** Delays the phase.	**59.94Hz** **50Hz**
AV PHASE	Adjusts the phase of audio output in relation to the video output (in 20.8 µs steps). **-128** to **0** to **127** **-:** Advances the phase of audio output in relation to the video output. **+:** Delays the phase of audio output in relation to the video output.	**59.94Hz** **50Hz**

Item	Settings and brief function description	FREQ indications
HD SYS H ADVANCE	Sets whether HD SDI output has the phase advanced 90H in relation to the SD reference input when there is an SD reference input. 0H: Outputs with the same phase as the SD reference. 90H: Outputs with the HD SDI output phase advanced 90H from the SD reference output. **Note:** Audio and time codes are output with the same phase as HD SDI output.	59.94Hz
OUTPUT REF	Selects the reference for video output. AUTO: Uses the signal input to the REF connector as the reference. When there is no input to the REF connector, the selected video input signal is used as the reference. When there is no REF input signal and no VIDEO input signal, the internal clock is used. REF: Uses the REF input signal as the reference. If there is no such signal, the internal clock is used. INPUT: Uses the VIDEO input signal as the reference. If there is no such signal, the internal clock is used.	59.94Hz 50Hz

HOURS METER

Item	Settings and brief function description
OPERATION	Displays the total time that the power of the unit has been on.
P.ON TIMES	Displays the total number of times that the power of the unit has been turned on.
LCD	Displays the total time that the LCD monitor of the unit has been lit.
FAN	Displays the total time that the fan of the unit has been rotating.

VERSION

Displays the various versions of the unit.

Item	Settings and brief function description
VERSION	Displays the overall firmware version (representative version) of the unit.
MODEL NAME	Displays the model name of the unit.
SERIAL NO.	Displays the serial number of the unit.
MAC ADDRESS	Displays the MAC (Media Access Control) address of the unit.
UID	Displays the unique ID of the unit.

List of Compatible Input and Output Formats

The following shows the compatible input/output formats that can be set in the “LINE&FREQ”, “REC FORMAT”, and other menu items.

Compression formats “REC FORMAT”	Sampling	Quantization	Video formats “LINE&FREQ”		
			1080-59.94i 1080-50i	720-59.94p*1 720-50p*1	1080-59.94p 1080-50p
AVC-Intra100	4:2:2	10 bit	Recording/playback	Recording/playback	Recording/playback <3G-SDI>
AVC-Intra50	4:2:0	10 bit	Recording/playback	Recording/playback	
AVC-LongG50	4:2:2	10 bit	Recording/playback	Recording/playback	
AVC-LongG25	4:2:2	10 bit	Recording/playback	Recording/playback	Recording/playback <3G-SDI>
DVCPRO HD	4:2:2	8 bit	Recording/playback	Recording/playback	

*1 Support is planned to be provided via a version update.

Compression formats “REC FORMAT”	Sampling	Quantization	480-59.94i 576-50i
DVCPRO50	4:2:2	8 bit	Recording/playback
DVCPRO	4:1:1	8 bit	Recording/playback
DV	---	8 bit	Recording/playback

Using a Keyboard

Full Keyboard

The full keyboard is displayed when metadata input or other alphanumeric input is required.
Move the cursor to the character you want to enter and press the [SET] button.
Use the cursor buttons to move the cursor.

The keys on the keyboard have the functions listed below.

Key	Function
BS	Deletes one character.
Caps	Toggles between upper and lower case.
OK	Saves the entered characters and closes the software keyboard.
EXIT	Discards the entered characters and closes the software keyboard.
◀◀	Moves the cursor to the first character.
◀	Moves the cursor 1 character space back
►	Moves the cursor 1 character space forward
►►	Moves the cursor to the location after the last character

◆Note:

- Pressing the [RESET] button deletes all entered characters.
- Pressing the [EXIT] button displays a confirmation message before exiting the keyboard. Select “YES” and press the [SET] button to close the software keyboard.
- Switching Caps also changes the symbols on the keyboard.

Numeric Keyboard

The numeric keyboard is displayed when you only need to enter numbers.
Move the cursor to the number you want to enter and press the [SET] button.
Use the cursor buttons to move the cursor.

The keys on the keyboard have the functions listed below.

Key	Function
BS	Deletes one character.
OK	Saves the entered characters and closes the software keyboard.
EXIT	Discards the entered characters and closes the software keyboard.
◀	<When entering decimals> Moves the cursor 1 character space back <When entering a time code> Moves the cursor 1 item space back
►	<When entering decimals> Moves the cursor 1 character space forward <When entering a time code> Moves the cursor 1 item space forward

USB Keyboard

To use a USB keyboard for input, connect it to the KEYBOARD connector when a menu that displays the full keyboard or numeric keyboard is selected.
The type of keyboard must first be set in the menu.
(→ “KEYBOARD” page 91 menu item)

◆Note:

- If the keyboard draws more than 100 mA, a protective circuit may shut down the unit.
- Input is limited to alphanumeric characters and symbols.
- Some keyboards may not work properly.

For Long and Trouble-Free Operation

Maintenance

Do not use benzene or thinner for cleaning.
- Benzene and thinner may deform the unit and cause the paint to peel off.
- Remove any DC input and disconnect the power cord from the outlet before cleaning.
- Wipe the unit using a soft clean cloth. In the case of stubborn dirt, wipe off the dirt using a cloth dampened with a solution of a neutral detergent and water and then wipe with a dry cloth.

Condensation

Condensation occurs due to the same principle involved when droplets of water form on a window pane of a heated room. It occurs when the unit or a card is moved between places where the temperature or humidity varies greatly or when, for instance:
- It is moved to a very humid place full of steam or to a room immediately after heating of the room.
- It is suddenly moved from a cold location to a very hot or humid location.

When moving the unit to locations such as these, leave it standing for about 10 minutes rather than switching on the power immediately.

Storage Precautions

Store the unit in a location where the humidity is low and the temperature is relatively constant.

Recommended ambient temperature: 15 °C to 25 °C (59 °F to 77 °F)
Recommended relative humidity: 40 % to 60 %

■ Unit

- Wrap the unit in a soft cloth to protect it from dust.
- Do not place the unit in a location exposed to direct sunlight, as the finish and LCD screen may be damaged.

■ P2 cards and SD memory cards

- After removing a P2 memory card from the unit, be sure to attach the card cap to protect the card connector from sand and dust. Then, place the card in its case before storing or transporting it.
- After removing a microP2 memory card or SD memory card from the unit, be sure to place it in its case.
- Do not leave cards in locations where corrosive gases are present.
- Do not leave cards in automobiles, locations exposed to direct sunlight, or other locations where the temperature will become high.
- Do not leave cards in high humidity or excessively dusty locations.

Warning System

Warning Details

When an error is detected after the power is turned on or during operation, the ⏻/❙ (POWER) lamp and a beep sound notify you that an error has occurred.

◆Note:

If multiple errors occur simultaneously, the one with the highest priority is displayed.

1. System error

Monitor display	Displays the error code.
⏻/❙ (power) lamp	Flashes 4 times per second.
Beep sound	Repeats rapidly.
Warning description	A reference signal error or communication error occurred.
Recording/playback operation	Stops.
Measure	Check the error code table and consult with your dealer.

2. Format inconsistency

Monitor display	Displays the error code.
⏻/❙ (power) lamp	Flashes 4 times per second.
Beep sound	Repeats rapidly.
Warning description	SYSTEM mode is internally inconsistent and a restart is required.
Recording/playback operation	Not possible
Measure	Turn the power off and then back on as described in the message and then check that an error is not displayed.

3. Card eject error

Monitor display	Displays the error code.
⏻/❙ (power) lamp	Flashes 4 times per second.
Beep sound	Repeats rapidly.
Warning description	An error occurred in the internal memory of the unit because a P2 card was removed during access.
Recording/playback operation	Not possible
Measure	Turn the power off and then back on as described in the message. Check that there is no problem with the clips on the removed card and repair the clips if necessary.

4. Recording error

Monitor display	Displays “REC WARNING.”
⏻/❙ (power) lamp	Flashes 4 times per second while recording continues.
Beep sound	Repeats rapidly.
Warning description	A recording or recording circuit setting error occurred.
Recording/playback operation	Recording may continue or may stop.
Measure	Resume recording. Alternatively, turn the power off and then back on, and then resume recording.

Error Codes

Code No.	Displayed message	Description	Operation
E-30	TURN POWER OFF <P2 CARD>	Displayed when an error occurs in reading and writing card data. To continue operation, turn the power off and then back on.	Card removal error
E-31	TURN POWER OFF <SYSTEM MODE>	System mode error To continue operation, turn the power off and then back on.	System error
E-35	SYSTEM ERROR <CODEC>	CODEC microprocessor error To continue operation, turn the power off and then back on.	System error
E-36	SYSTEM ERROR <P2 SYSTEM>	P2CS microprocessor error (error notification) To continue operation, turn the power off and then back on.	System error
E-37	SYSTEM ERROR <P2CS>	P2CS microprocessor error (communication disconnected) To continue operation, turn the power off and then back on.	System error
E-39	SYSTEM ERROR <INITIALIZE>	Video initialization error To continue operation, turn the power off and then back on.	Video initialization error
E-50	INPUT DC TOO LOW	Displayed when the input DV voltage is below the undercut voltage.	Low voltage
E-55	OPT SYS ERROR <SYSTEM> <NOT RESPONSE> <HALT>	Displayed when an error occurs with the system of the AVCHD codec board AJ-YCX500G (option). To continue operation, turn the power off and then back on.	System error

Display of warning information

When a warning occurs, a message is displayed on the OSD display and information display.

Displayed message	Description	Deck operation
CANNOT REC	Displayed when data cannot be recorded on a P2 card. [Cause] • The card is write protected. • No more free space on the card. • Recording was attempted on a card that cannot be used. • Card status changed during recording. • Recording was attempted when the unit was BUSY.	STOP
CANNOT LOOP REC	Displayed when data cannot be recorded to a P2 card while the “RECORDING” (→ page 86) menu item is “LOOP.” [Cause] • The card is write protected. • No more free space on the card. • Recording was attempted on a card that cannot be used. • Card status changed during recording. • Recording was attempted when the unit was BUSY.	STOP

Displayed message	Description	Deck operation
CANNOT PLAY	Displayed when playback was interrupted due to a clip error or other factor. [Cause] • Playback was attempted when there were no clips. • Playback was attempted for a card that cannot be used. • Other causes that prevent playback or stop playback. • Playback was attempted when the unit was BUSY.	STOP
DC PWR NEAR END	The voltage of the external DC power supply is low. Replace the external DC power supply.	Operation continues
SLOT SEL INVALID	Displayed if the SLOT SEL button (when assigned to a USER button) is pressed when it is not possible to switch the P2 card recording slot.	Operation continues
BUSY	Displayed while the clip information is being read or when the clip configuration has changed. No operations can be performed while BUSY is on the screen. [Cause] • A card has been inserted or removed. • Updating is in progress • Recording post processing is in progress • Other causes	Operation continues
FAN STOPPED	Displayed when the fan motor is stopped.	Operation continues
BACKUP BATT EMPTY	Displayed when a drop in the backup battery voltage for the internal clock is detected at power-on. Ask your dealer to replace the battery.	Operation continues
REC WARNING <FRAME SIGNAL>	Displayed when a video or audio error occurs during recording. To continue operation, turn the power off and then back on. If the input signal becomes disrupted during recording, recording will continue but disrupted video will be recorded. Check the signal input to the unit. Even if recording is continued, video and sound will be recorded correctly when the signal returns to normal.	Continues
TEMPORARY PAUSE IRREGULAR SIG	Displayed when a video or audio error occurs during recording, and recording is paused. Recording will be resumed automatically when the signal returns to normal. The clip will be divided. The time code may become non-continuous. When recording in AVC-G format, remove and reinsert the card after recording is complete, and repair the clips for which "NG" (yellow) is displayed.	Recording pauses
REC WARNING <PULL DOWN> (When occurs during recording) REC WARNING PULL DOWN ERROR (When occurs not during recording)	The video pull-down sequence and TC values are not synchronized. Check the signal.	Continues
REC WARNING <OVER MAX# CLIPS>	Displayed when an attempt was made to record a clip that would result in the upper limit for the total number of clips being exceeded on one P2 card. Replace the P2 card or delete unnecessary clips.	STOP

Displayed message	Description	Deck operation
CARD ERROR <∗∗∗∗>	Displayed when a data error caused by the P2 card occurred during recording. It remains displayed after recording stops until the following operation is performed. Furthermore, it is displayed for 3 seconds when playback is stopped due to a P2 card error during playback. (∗∗ is the slot number mark for indicating where the error occurred.) Replace the P2 card in the slot where the error occurred.	STOP
REC WARNING <REC DATA>	Displayed when an error occurs with the recording data during recording. Turn the power off and then back on, then try again.	Operations continues or STOP
DIR NG CARD <∗∗∗∗>	The directory configuration is incorrect. Immediately back up the card data and format the card before using it again. (∗∗ is the slot number mark for indicating where the error occurred.)	Operation continues
RUNDOWN CARD <∗∗∗∗>	The card has been rewritten the maximum number of times. Replacing the P2 card is recommended. (∗∗ is the slot number mark for indicating where the error occurred.)	Operation continues
SD CARD <∗∗>	An SDHC/SDXC memory card is inserted in a microP2 memory card slot. (∗∗ is the slot number mark for indicating where the error occurred.) Operation will continue but recording to a microP2 memory card or P2 memory card is recommended.	Operation continues
REC IMPOSSIBLE <∗∗>	An SDHC/SDXC memory card is inserted in a P2 card slot. Recording to an SDHC/SDXC memory card is not possible. (∗∗ is the slot number mark for indicating where the error occurred.) Record to a microP2 memory card or P2 memory card.	Operation continues
AUTH NG CARD <∗∗>	CPS authentication of the microP2 memory card failed. (∗∗ is the slot number mark for indicating where the error occurred.) Recording and playback are not possible with a microP2 memory card for which CPS authentication has failed. Refer to “Manual and Automatic CPS Authentication” (→ page 46) and then change the settings.	Operation continues
STORAGE INTERMITTENT	Displayed for approx. 3 seconds when reduced storage device performance or another factor has resulted in intermittent clip playback. Use a storage device with higher specifications.	Operation continues
PB INTERMITTENT	Intermittent playback occurs with an SDHC/SDXC memory card. A card for which playback performance cannot be guaranteed is inserted. Using a microP2 memory card or P2 memory card is recommended.	Operation continues
PROXY ERROR	Operation and cause: Proxy data recording stops but the recording of this material continues. • Electric circuit error (PROXY ERROR) • Proxy data recording error (PROXY REC WARNING) • When a proxy data recording error occurs, the proxy data being recorded is processed as follows. - The proxy data being recorded to a P2 card is deleted. - The proxy data being recorded to an SD memory card is not deleted or repaired.	Operation continues
PROXY REC WARNING		

Displayed message	Description	Deck operation
LAN ERROR	Displayed when the LAN connection or disconnection failed. To continue operation, turn the power off and then back on. If the message is displayed again, consult with your dealer.	STOP
INVALID TC MODE	Displayed during playback when the time code has been recorded in drop frame mode. The video output is distorted and audio output is muted at the drop point of the time code. Check the playback clip. Playing back a 24P frame-rate clip requires that the time code be recorded in non-drop frame mode. Displayed when the time code in an HD SDI input is in the drop frame mode during EE or recording. Normal recording will not be possible under these conditions.	Operation continues

Display of thumbnail warning information

Item	Message	Description	Measure
Thumbnail	CANNOT ACCESS!	The data cannot be accessed because, for example, the content is corrupted.	Restore the media and clips to their normal states before access.
	CANNOT CHANGE!	The thumbnail cannot be changed for a text memo that is indicated by a gray because the thumbnail could not be generated.	Edit the settings or content to enable thumbnail display.
	CANNOT DELETE!	Deletion is not possible because the content versions do not match.	Match the device and content versions.
	CANNOT FORMAT!	Formatting is not possible because of a problem with the P2 card, etc.	Check the P2 card.
	CANNOT RE-CONNECT!	Clip reconnection is not possible because, for example, content that is not a clip spanning multiple cards is selected.	Check the selected content.
	CANNOT REPAIR IN SELECTION!	Some of the selected clip could not be repaired.	Check the selected content.
	CANNOT REPAIR!	Content that cannot be repaired is selected.	Check the selected content.
	CANNOT SAVE! FILE NAME IN USE	A configuration file with the same file name already exists on the SD memory card.	Save the file under a different name.
	CARD FULL!	The P2 card or SD memory card is full.	Insert media with sufficient free space.
	INVALID VALUE!	The entered data is invalid.	Enter data in a valid range.
	LACK OF CAPACITY!	There is not enough recording space left on the card.	Insert a card with sufficient recording space.

Item	Message	Description	Measure
Thumb-nail	MISSING CLIP!	A shot mark cannot be added to a clip that spans multiple P2 cards if all of the segments are not available.	Insert all of the P2 cards on which the clip was recorded.
	NO CARD!	No P2 card or SD memory card is inserted.	Insert compatible media.
	NO FILE!	The designated file does not exist.	Check the file.
	NO COPY TO SAME CARD!	Copying is not possible because the copy source and copy destination are the same.	Copy to a card that does not contain the selected clip.
	NO INPUT!	No data is input.	Input data and then set the setting.
	NO SD CARD!	No SD memory card is inserted.	Insert an SD memory card.
	NOT SELECTED!	An attempt was made to delete when no clip was selected.	Select the clip you want to delete.
	SAME CLIP IS SELECTED!	The selected clips contain multiple copies of the same clip (duplicated by copying).	Multiple copies of the same clip (duplicated by copying) cannot be simultaneously copied. Deselect all of the selected clips that are identical copies.
	TOO MANY CLIPS!	Too many clips are selected.	Reduce the number of selected clips.
	UNKNOWN CONTENTS FORMAT!	This warning is for when the version of the content is not compatible with the unit.	Match the device and content versions.
	UNKNOWN DATA!	• The metadata character code is invalid. • There is a problem with the data in the file.	• Use UTF-8 for the metadata character code. Use the viewer to enter the correct characters. • Create the file again.
	USER CLIP NAME MODIFIED!	Characters need to be deleted when the counter value is added to the clip name.	Only up to 100 bytes can be saved for the combination of the user clip name and counter value so characters are deleted automatically when the total exceeds that amount.
	WRITE PROTECTED!	The P2 card or SD memory card is write protected.	Insert write-enabled media.

Item	Message	Description	Measure
STORAGE	CANNOT ACCESS CARD!	An error occurred during P2 card access.	Check the P2 card.
	CANNOT ACCESS TARGET!	An error occurred while attempting to access the connection target.	Check the storage device status and connection.
	CANNOT COPY! FORMAT STORAGE DEVICE TO FAT	The clips cannot be copied because there is no partition to which to copy clips on the storage device.	Reformat in FAT format or export the data from a P2 card to create a partition.
	CANNOT FORMAT!	The storage device cannot be formatted.	Connect a different storage device.
	CANNOT RECOGNIZE STORAGE DEVICE!	The storage device cannot be recognized properly.	Reboot the storage device or connect a different device.
	CANNOT SELECT! MAX.6 PARTITIONS	A storage device with more than six partitions cannot be selected (simultaneous mounting of partitions).	Cancel some of the selected partitions.
Storage	CARD IS EMPTY! CANNOT COPY!	The P2 card to be copied is empty.	Copying will not be performed since the card is empty.
	FORMAT P2 CARD!	Importing to a P2 card containing clips is not possible.	Format the P2 card.
	LACK OF CAPACITY!	Not enough free space left on the storage device.	Use a new storage device with enough free space or a formatted storage device.
	MISMATCH COMPONENT!	The model numbers of the copy source P2 card and copy destination P2 card do not match. Copying is not possible	Use P2 cards of the same model number or import clips individually.
	TOO MANY PARTITIONS!	There are too many partitions.	The maximum number of partitions for a storage device is 23. Use a new storage device or reformat the storage device.
	UNKNOWN DEVICE CONNECTED!	An unsupported DVD drive or other device is connected.	Connect a supported storage device, and then turn the power off and then back on.
	VERIFICATION FAILED!	Verification after copying failed.	Copy the data again.
Software keyboard	CANNOT CHANGE!	An attempt was made to change PERSON when no text memo had been entered.	First enter a text memo.
	CANNOT SET!	The entered value is invalid.	Enter a valid value.
	INVALID VALUE!		
	AUTHENTICATION ERROR!	Manual authentication failed.	Enter the correct password.

Item	Message	Description	Measure
Network	CANNOT CONNECT!	A connection cannot be established to the network.	Check that the LAN settings are correct, LAN cable is connected properly, and network is working properly.
	CANNOT FIND FTP-SERVER!	The connection destination FTP server cannot be found.	Check whether the URL item of FTP CLIENT is correct.
	LOGIN FAILED!	Logging in to the connection destination FTP server failed.	Check whether the USER ID and USER PASSWORD items of FTP CLIENT are correct.
	PING FAILED!	The ping failed.	Check that the LAN settings and the URL item of FTP CLIENT are correct, LAN cable is connected properly, and network is working properly.
	CANNOT ACCESS GATEWAY!	The gateway server cannot be accessed.	Check that the LAN settings are correct.
	CHECK LAN SETTING	The gateway server cannot be accessed.	Check that the LAN settings are correct.
	IP ADDRESS IS USED!	The set IP ADDRESS is being used by another device.	Consult with the network administrator and then set another IP ADDRESS.
	INVALID VALUE!	The entered data is invalid.	Enter data in a valid range.

Updating the Firmware in This Unit

The firmware can be updated using either of the following two methods.

(1) Customers who have registered for our P2HD 5 Year Warranty Repair Program

You can access a special website to check for updates and download the required firmware.
For further information and registration, visit the Panasonic website.
(→ “Website URL” page 8)

(2) Customers not registered for our P2HD 5 Year Warranty Repair Program

Check the firmware version of the unit in the “SYSTEM” - “VERSION” menu item and then access the following website to check the most recent firmware information and download the firmware if necessary.
Download the update file, place the update file on an SD memory card, and then insert the SD memory card in the unit.
For how to update the firmware, visit the Panasonic website(→ “Website URL” page 8).

◆Note:

Only use SD memory cards that comply with the SD, SDHC, or SDXC standards in this unit.
Be sure to format the SD memory cards with this unit.

Specifications

General

Power supply:
100 - 240 V AC, 50/60 Hz, 45 W
12 V DC, 3.6 A (including options)

[ ] indicates safety information.

Ambient operating temperature:	0 °C to 40 °C (32 °F to 104 °F)
Ambient operating humidity:	10% to 80% (non-condensing)
Ambient storage temperature:	-20 °C to 50 °C (–4 °F to 122 °F)
Weight:	3.65 kg (8.05 lbs)
Dimensions (W×H×D):	210 mm × 125.5 mm × 253 mm (8-1/4 inches × 4-15/16 inches × 9-15/16 inches) (excluding the handle, support legs, knob, and connectors)
Recording media:	P2 memory cards, microP2 memory cards
Recording formats:	AVC-Intra100/AVC-Intra50/AVC-LongG50/AVC-LongG25 DVCPRO HD/DVCPRO50/DVCPRO/DV formats are selectable.
Proxy file formats:	MP4 (ISO/IEC14496 standards), MOV (QuickTime format)
Proxy video compression formats:	MPEG4 Simple Profile, H.264/AVC Baseline Profile, H.264/AVC High Profile
Proxy audio:	AAC-LC, Linear PCM
Video recording signals:	1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 480/59.94i, 576/50i
Audio recording signals:	AVC-LongG50/AVC-LongG25: 48 kHz, 24 bit, 8 channels
	AVC-Intra100/AVC-Intra50: 48 kHz, 16 bit, 8 channels 48 kHz, 24 bit, 8 channels
	DVCPRO HD: 48 kHz, 16 bit, 8 channels
	DVCPRO50: 48 kHz, 16 bit, 4 channels
	DVCPRO/DV: 48 kHz, 16 bit, 4 channels

Recording times:

Card	Recording Method (Compression Method) 59.94 Hz/50 Hz			
	AVC-Intra100/ DVCPRO HD	AVC-Intra50/ AVC-LongG50/ DVCPRO50	DVCPRO	AVC-LongG25
16 GB×1	Approx. 16 minutes	Approx. 32 minutes	Approx. 64 minutes	Approx. 54 minutes
32 GB×1	Approx. 32 minutes	Approx. 64 minutes	Approx. 128 minutes	Approx. 110 minutes
64 GB×1	Approx. 64 minutes	Approx. 128 minutes	Approx. 256 minutes	Approx. 220 minutes

◆**Note:**

- With 1080/59.94p and 1080/50p, the times are half of those shown above.
- All of the above times apply to the continuous recording of a single clip on a P2 card.
- Depending on the number of clips recorded, the recording times may be shorter than those listed above.

VIDEO

DIGITAL VIDEO

Sampling frequencies:	AVC-Intra100/AVC-LongG50/AVC-LongG25/DVCPRO HD: (59.94 Hz) Y: 74.1758 MHz, P_B/P_R: 37.0879 MHz (50 Hz) Y: 74.2500 MHz, P_B/P_R: 37.1250 MHz
	AVC-Intra100/AVC-LongG25: (1080/59p) Y: 148.3516 MHz, P_B/P_R: 74.1758 MHz (1080/50p) Y: 148.5000 MHz, P_B/P_R: 74.2500 MHz
	DVCPRO50: Y: 13.5 MHz, P_B/P_R: 6.75 MHz
	DVCPRO: Y: 13.5 MHz, P_B/P_R: 3.375 MHz
Quantization:	AVC-Intra100/AVC-Intra50/AVC-LongG50/AVC-LongG25: 10 bit
	DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bit
Video compression methods:	AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile
	AVC-LongG50/AVC-LongG25: MPEG-4 AVC/H.264 High Profile
	DVCPRO HD: DV-Based Compression (SMPTE ST 370)
Color sampling:	AVC-Intra100, AVC-LongG50, AVC-LongG25: $Y:P_B:P_R$ = 4:2:2
Resolution:	AVC-Intra100/AVC-LongG25: 1920×1080 (1080/59.94p, 1080/50p)
	AVC-Intra100/AVC-LongG50/AVC-LongG25: 1920×1080 (1080/59.94i, 1080/50i)
	AVC-Intra50: 1440×1080 (1080/59.94i, 1080/50i)

VIDEO INPUT

Reference input:	BNC × 1, Auto switching of black burst / HD 3-value sync
SDI input:	BNC × 1

VIDEO OUTPUT

SD analog composite monitor output:	BNC × 1
Reference through output:	BNC × 1
SDI outputs (HD/SD selectable):	BNC × 2
SDI monitor output (HD/SD selectable):	BNC × 1
HDMI port:	HDMI × 1 (HDMI Type A) (VIERA link not supported)

◆**Note:**

HDMI output does not support 480/59.94i and 576/50i. Convert to 480/59.94p and 576/50p for output.

AUDIO

DIGITAL AUDIO

Sampling frequency:	48 kHz (synchronized with video)
Quantization:	16 bit (DVCPRO HD/DVCPRO50/DVCPRO/DV)
	16/24 bit selectable (AVC-Intra 100/AVC-Intra 50)
	24 bit (AVC-LongG50/AVC-LongG25)
Headroom:	12/18/20 dB (selectable)
De-emphasis:	T1=50 µs, T2=15 µs (ON/OFF selectable)

AUDIO INPUT

Analog inputs (CH1, CH2):	XLR × 2
Digital inputs:	BNC × 2 (CH1/2, CH3/4) AES/EBU format
SDI input:	BNC × 1

AUDIO OUTPUT

SDI outputs:	BNC × 3
Analog inputs (CH1, CH2, monitor output (L/R) <selectable>):	XLR × 2
Digital outputs:	BNC×2 (CH1/2, CH3/4) AES/EBU format
Headphone output:	Stereo mini jack (3.5 mm (1/8 inchs) dia.), 8 Ω, variable level
HDMI outputs:	2 channels (linear PCM)
Internal speaker:	Round, × 1 (monaural)

OTHER I/O

Time code input:	BNC × 1, 0.5 V[p-p] to 8.0 V[p-p], 10 kΩ
Time code output:	BNC × 1, low impedance, 2.0 V ±0.5 V[p-p]
REMOTE:	9-pin D-SUB × 1, RS-422A interface
PARALLEL REMOTE:	D-SUB 15-pin × 1
LAN:	RJ-45 ×1, 1000BASE-T/100BASE-TX/10BASE-T
USB HOST:	USB 3.0 Host (Type A) × 1
USB device:	USB 2.0 Device (Type B) × 1
For keyboard:	USB 2.0 (Type A) × 1 (100 mA maximum)
	◆Note: This port is intended for keyboard connection. If the keyboard draws more than 100 mA, a protective circuit may shut down the unit.

Index

Number

3G-SDI OUT ... 92
4:3 MARKER ... 97

A

AC IN connector ... 18
Access lamp
- microP2 Memory Card ... 16, 22
- P2 Memory Card ... 16, 22
- SD memory card ... 16, 65

Accessories ... 13
Adjusting the playback audio levels ... 30
Adjusting the recording audio levels ... 27
AES / EBU IN / OUT connectors ... 18
AFTER CUEUP ... 91
ANALOG AUDIO IN jacks ... 17
ANALOG AUDIO OUT/MON output jacks ... 17
AUDIO ... 94
AUDIO LEVEL-PB button ... 14
AUDIO LEVEL-REC button ... 14
AUDIO SMPL RES ... 105
AUTHENTICATE ... 83
AUTO POWER OFF ... 91
AUTO REC ... 28, 86
AV PHASE ... 105
AVCHD playback mode ... 65
- Switching to AVCHD playback mode ... 66

B

B CONTRAST ... 97
BACKLIGHT ... 97
Bad clip indicator ... 34
BASIC ... 91
BEEP ... 91
BRIGHTNESS ... 97

C

CANCEL button ... 15
Card slots ... 34
- microP2 memory cards ... 16
- P2 memory card ... 16
- SD memory card ... 16, 65

CARD STATUS ... 82
CC REC ... 87
CC(F1) BLANK ... 87
CC(F2) BLANK ... 87
CHANGE PARTITION NAME ... 84
Changing the recording slot ... 27
CLIENT SERVICE ... 95
CLIP ... 82, 102
Clip
- Copying ... 39
- Deleting ... 40, 54, 60
- Playing back ... 30, 36
- Reconnecting ... 40
- Recording ... 27
- Repairing ... 40
- Selecting ... 38
- forward/rewind ... 31

Clip metadata ... 69
- Adding ... 43
- Changing ... 42
- Viewing ... 41

CLIP PROPERTY ... 82
CLOCK ... 91
Clock ... 21
COLOR LEVEL ... 97
Condensation ... 109
Content protection system ... 23
CONTRAST ... 97
COPY ... 83
Copying
- Clips ... 39
- Storage device ... 51

COUNTER button ... 14
Counter value ... 43
CPS ... 23
- Automatic CPS authentication ... 47
- Manual CPS authentication ... 46

CPS PASSWORD ... 82
CTL ... 77
CTL DISPLAY ... 88
Cursor control buttons ... 15

D

DATA DISPLAY ... 84
DC IN connector ... 18
DELETE ... 82
DELETE FOLDER ... 84
DELETE LAST PARTITION ... 84
DF MODE ... 89
DHCP ... 96
DIAG button ... 15
DIAG display ... 75
DISPLAY ... 96
DISPLAY button ... 15
Dividing
- Clips ... 23

DOWNCON MODE ... 93

E

EDH(SD) ... 92
Edit copy indicator ... 34
EJECT buttons ... 16
Error codes ... 111
EXCH. THUMBNAIL ... 83
EXIT button ... 15
EXPLORE ... 83
- FTP server ... 58
- Storage device ... 51

EXPORT ... 83
Export
- FTP server ... 62
- Storage device ... 50

EXT DC IN ... 98
EXT DC IN SELECT ... 98
EXT TC SEL ... 89
External DC power supply ... 18
External mode ... 78

F

FAN ... 106
Fan ... 19
FF button ... 15
FF.REW MAX ... 87
FILE ... 102
FILE SPLIT ... 87
Firmware ... 118
FORMAT ... 83
FORMAT (STORAGE) ... 83
FORMAT SD CARD ... 102
Formatting
- P2 cards ... 45
- SD memory cards ... 45
- Storage device ... 49

Frame-by-frame playback ... 31
FREE CAP. OF PARTITION ... 82
FTP client functions ... 58
FTP EXPLORE screen ... 58
FTP server
Export ... 62
Import ... 63
Transferring ... 60
Writing back from an FTP server ... 61
FTP SERVER URL ... 95
FTP thumbnail screen ... 59

G

G CONTRAST ... 97
GAMMA SELECT ... 93

H

HD EMBD LTC ... 89
HD EMBD VITC ... 89
HD SYS H ADVANCE ... 106
HD/SD-SDI IN/OUT/MON jacks ... 17
HDMI OUT port ... 18
Headphone jack (PHONES) ... 16
Hot swap recording ... 28
HOURS METER ... 106

I

I/F SETUP ... 91, 102
ID OF 9P REMOTE ... 91
IMPORT ... 83
Import
FTP server ... 63
Storage device ... 55
Incomplete clip indicator ... 34
INDICATOR ... 84
INITIALIZE ... 57, 90, 96, 103
Initializing
Network settings ... 57
INPUT CH1 LEVEL ... 94
INPUT CH2 LEVEL ... 94
INPUT SEL ... 92, 94
INT SG ... 92

K

KEYBOARD ... 91
Keyboard ... 108
KEYBOARD port ... 18

L

LAN ... 34, 56, 95
LAN port ... 18
LAN PROPERTY ... 95
LCD ... 106
LCD MONITOR ... 97
LEVEL (monitor audio volume adjustment knob) ... 16
LEVEL METER ... 95
LINE&FREQ ... 105
List of compatible input and output formats ... 107
LOAD ... 90, 102
LOAD FACTORY DATA ... 103
LOAD USER DATA ... 102
LOCAL ENABLE ... 91
LOG DISPLAY ... 96
LOGIN PASSWORD ... 95
LOGIN USER ... 95
LOOP REC ... 28

M

MAC ADDRESS ... 95
Main Mode ... 27
Maintenance ... 109
Menu
Menu operations ... 79
Menu structure ... 80
MENU button ... 15
Metadata upload file ... 43, 44
microP2 memory card access lamps ... 16
microP2 memory card slots ... 16
MODE button ... 14
Monitor audio volume adjustment knob (LEVEL) ... 16
MONITOR CH ... 95
MONITOR OUT VOL. ... 95
Multi control dial ... 15

N

NETWORK SEL ... 95
Network settings ... 56
NETWORK TOOLS ... 96
NEXT button ... 15

O

One clip playback ... 31, 37
OPERATION ... 106
Options ... 13
OSD display ... 74
OSD GRADE ... 96
OSD OUTPUT ... 96
OSD TC SELECT ... 96
OUTPUT AES/EBU CH ... 94
OUTPUT ANALOG CH ... 95
OUTPUT CH1/L LEVEL ... 94
OUTPUT CH2/R LEVEL ... 94
OUTPUT EMBD(HD) CH ... 94
OUTPUT EMBD(SD) CH ... 94
OUTPUT FORMAT ... 92
OUTPUT REF ... 106

P

P.ON TIMES ... 106
P2 Card ... 22
Access Lamp ... 22
Checking the card status ... 45
Formatting ... 45
Handling of recording data ... 24
Recording times ... 22
P2 memory card access lamps ... 16
P2 memory card slots ... 16
PARALLEL PORT ... 100
PARALLEL REMOTE connector ... 19
PAUSE button ... 15
PB POSITION ... 84
PHONES (headphone jack) ... 16
PING ... 57, 96
PLAY button ... 15
PLAY DELAY ... 87
Playing back
Clips ... 30, 36, 70
Text memo ... 37
PORT ... 100, 101
Power button ... 16
Power lamp ... 16
POWER ON GUI ... 91
PREV button ... 15
PROPERTY ... 82, 90
PROPERTY DISP. ... 85
Proxy indicator ... 34
Proxy recording ... 29
PROXY SETUP ... 88

R

R CONTRAST 97
RATE CONV. 94
REC button 15
REC FORMAT 105
REC MEDIA 87, 88
REC META DATA 90
REC MODE (HD) 88
REC/PB 86, 102
REC/PB FUNCTION 86
REC/PB SETUP 87
RE-CONNECT 83
RECORD 90
RECORDING 86
Recording times 22
Recording/playback screen 27
REF ALARM 91
REF IN jacks 17
REF LEVEL 95
REMAIN SETUP 82
REMOTE button 14
REMOTE connector 18
REPAIR 83
REPEAT PLAY 86
Repeat playback 31
REPOSITION 82
RESET button 14
REW button 15
RUN MODE 88

S

SAVE 102
SAVE AS 102
SAVE USER DATA 103
Saving and loading setup data 103
SD CARD 82
SD CARD PROPERTY 102
SD memory card 25, 65, 73
- Formatting 45
- Removing SD memory cards 65
- SD memory card protection 65

SD memory card access lamp 16, 65
SD memory card slot 16, 65
SDHC memory card 25
SDXC memory card 25
SEARCH button 15
SEEK POS SEL 87
SET button 15
SETUP DATA (SD CARD) 102
SETUP DATA SELECT 102
SETUP(7.5%) 92
SG MOVE 92
SHIFT button 14
Shot mark 39
Shot mark indicator 33
SHUTTLE MAX 87
SORT 84
Speaker 16
SPEAKER OUT 95
Specifications 119
SSH 95
STATUS DISPLAY 96
STOP button 15
STOP EE SEL 87
STORAGE COPY SETUP 85
Storage device 34, 47, 48
- Connecting 49
- Copy 51
- Export 50
- Format 49
- Import 55
- Information display 51

Storage Precautions 109
SYS H(HD) 105
SYS H(SD) 105
SYSTEM 102, 105
SYSTEM MODE 105
SYSTEM SETUP 105

T

TC OUTPUT REF 89
TC PRESET button 14
TC SUPER 88
TC/UB/CTL 88
TCG MODE 88
Text memo 38
- Deleting 38
- forward/rewind 31

Text memo indicator 34
Thumbnail 32
- AVCHD 66
- Chainging the thumbnail display 35
- Changing 42
- Displaying 32
- FTP server 59
- Names and functions of the parts 33
- Storage device 53

THUMBNAIL button 14
THUMBNAIL SETUP 84
THUMBNAIL SIZE 84
Time 21
Time code 77
TIME CODE IN/OUT jacks 17
TIME OUT 97
TOP/BOTTOM buttons 15
TYPE A END 98
TYPE A NEAR END 98
TYPE B END 98
TYPE B NEAR END 98

U

UBG MODE 88
Unknown clip indicator 34
Unplayable indicator 35
UPCON MODE 93
Update 118
USB 2.0 device port 18
USB Device Mode 64
USB HOST port 16, 47
USB Keyboard 108
USER 99
USER 1-3, 4-6 buttons 14
User bits 77
USER BUTTON 99
USER CLIP NAME 43, 90

V

Variable speed playback 30
VERIFY 85
VERSION 106
VIDEO 92
VIDEO OUT jack 17
Viewing the connection log 57
VITC BLANK 89
VITC POS-1 89
VITC POS-2 89

W
Warnings 110
Waveform monitor (WFM) display 76
WFM 76
WFM POSI 97
WFM TYPE 96
Wide indicator 34
WIDE SEL 92

Y
Year, Month, Day 21

Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.
For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

EU

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

EU

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Cd

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

Panasonic Corporation
Web Site: http://panasonic.net

© Panasonic Corporation 2013